2010 University of Florida Research and Extension and Florida A&M University Extension Combined Annual Report of Accomplishments and Results

Status: Accepted

Date Accepted: 06/03/2011

I. Report Overview

1. Executive Summary

UF/IFAS 1862 Extension and Research and FAMU/CESTA 1890 Extension AREERA Narrative Summary

Included in this document are the results of the 2010 Report of Accomplishment for the Florida UF/IFAS 1862 Extension and research programs and the FAMU/CESTA 1890 Extension program. Florida 1862 Extension and research have met the 25% requirements for integrated and multistate programs and the required documentation was submitted to OMB on April 1 as required.

In 2010, the Florida Cooperative Extension (UF and FAMU combined) completed 8,721 field consultations, had 13,786 office consultations, and a total of 283,841 clientele attended group learning sessions. There was a total of 36,716 phone calls from clientele with specific problems that were dealt with, and 69,410 who contacted Extension by email for assistance with issues. Over 9.5 million people also made indirect contact using the solutions for your life website (http://solutionsforyourlife.com) to obtain educational information or looked at and/or printed peer-reviewed articles from UF's Electronic Data Information Source (EDIS) . Over 240,302 youth were involved in 4-H programs across the state. Of these students, 75% were white/Caucasian, 18% were black/African American, and almost 18% were Hispanic or Latino. Among many projects completed by 4-H youth, 113,798 students completed projects in Engineering and Technology and 30,306 completed projects related to foods and nutrition. These 4-Hers were assisted in 2010 by 16,315 adult and youth volunteers.

UF/IFAS research is closely integrated with Extension to ensure that the mission of the experiment station, captured in their tagline of Discovery, Innovation and Application is applied to the needs of the citizens of Florida. In seeking solutions both Florida Extension and research often find themselves without answers; hence the need for research to explore and develop new knowledge sources. These knowledge sources, often innovative in make-up are then integrated with Extension to produce high quality programs that provide needed solutions to critical issues.

For 2010, Florida UF/IFAS and FAMU/CESTA are highlighting the NIFA initiatives as they relate to both research and Extension in this summary. Both land-grant institutions have successful programs ongoing in some or most of the 5 NIFA initiative areas. Florida A& M University Extension has been very active in the area of **childhood obesity** having trained in 2010 a total of 22 Florida school districts in procuring and using fresh farm produce in school lunches. Schools serving 300,000 school children purchased over 100,000 pounds of fresh produce in this first year that was grown by local, small and medium-size farmers. Poundage is expected to increase as more farmers begin to grow fresh produce for his local market. UF/IFAS research has a number of projects related to obesity. One study is investigating the development of brown-like adipocytes among white adipose tissue (WAT) which has been attracting great attention due to its therapeutic potentials to prevent or correct obesity. UF/IFAS Extension is looking at the reduction of weight to reduce obesity that can lead to diabetes and other weight related diseases through a multitude of Extension programs such as Take Charge of Your Diabetes (TCYD) which is an in-depth Extension based collaborative DSME program targeted at people with type 2 diabetes .

UF Research and Extension is heavily involved in the area of **bioenergy**. Dr. Lonnie Ingram has been recognized for his ground breaking scientific work with a bacteria that could convert plant waste into ethanol, a cleaner burning substitute for gasoline. By genetically modifying E. coli bacteria in a lab, Ingram and his team successfully created an organism capable of converting all sugars in plant cells in to fuel ethanol. He has obtained many patents and Extension is providing instruction and training to clientele across the state as bioenergy plants begin to emerge and farmers and others beginning to grow or produce bio-energy related crops. FAMU Extension is also involved in bioenergy education. FAMU's Whole Farm Sustainable Bio-fuels Demonstration Project began in 2006. Alternate energy capacity building/hands-on sessions that address the utilization of waste vegetable oil to produce bio-diesel have been provided from beginning to advanced levels in 2010. FAMU has also been involved in providing knowledge to small farms including strategy for developing bio-energy to utilize farm grown oilseed crops to produce energy and electricity.

Food safety is a critical issue for IFAS Extension and research. With the extreme world financial crisis and increasing costs of food products many more families are growing their own food and canning the excess for later consumption. Many home canners are using practices that put them at high risk for food borne illness and additional economic losses due to illness or food spoilage. In 2010, the food safety education of food handlers has focused on two objectives: 1) increasing food safety education of food handlers and 2) increasing the use of proper home canning procedures and other home food preservation techniques among consumers. In the commercial area since 2001, more than 8900 food managers have taken the ServSafe® training, with a passing rate of 80% or higher. In 2010, 562 people participated in the food manager certification program with the UF Extension food Safety and Quality Program in 20 counties. In UF Extension there are numerous projects related to food safety. Researchers in one project are looking for chemical interventions that would eliminate pathogens and spoilage bacteria from poultry products and processing equipment surfaces and products without the use of chemicals (both natural and artificial) that could be harmful to human health. FAMU has spent a great deal of time in 2010 working with new growers markets which are collaborative farmers and neighborhoods and local communities. In these markets, farmers sell a variety of farm grown products including organic certified duck, chicken, grass-fed beef, goat, lamb, seafood and other products that could be affected by food-borne diseases. Through educational programs FAMU Extension is reducing incidences of these outbreaks and making food safer for consumers. Workshops are provided during the market hours to increase attendees.

Each year, more studies show that **climate variability and climate change** pose significant economic and environmental threats not just in Florida but worldwide. So it's more important than ever to translate research into meaningful, timely information for farmers, policymakers and the public. To meet this challenge, the newly established Florida Climate Institute (FCI) has embarked on a mission to provide science-based outreach activities and decision-making tools to residents of the southeastern U.S. and beyond. Research at UF is being done in projects that show a connection between El Nino and nutrient runoff; the effects of land-use changes on a community's carbon footprint; altered disease patterns caused by climate changes; and the need for reliable water supplies in the face of drought. There is even a study on the influences of phenology which relates to the timing of important life events for plants and animals. In both UF and FAMU Extension educational programs have been developed around issues related to climate change. UF has developed the winter weather watch forecast service which is discussed with clientele by both UF and FAMU Extension in their educational programs. Producers participating in this program are able to access recorded weather forecasts and cold protection information. This information is vital to growers in determining when or if irrigation will be needed for cold protection on a specific night. This reduces the cost for cold protection and increases the likelihood of plant survival as well as increased production. It also saves on the use of valuable water supplies.

Global food security and hunger is of major importance to Florida agriculture and to the world. Emerging pathogens are a continuing threat to Florida's crops and to the winter truck garden crops in particular that feed so much of the U.S. and the world during the winter months. UF has research on going on many emerging pathogens that can affect food security including laurel wilt that attacks and kills avocado trees, citrus greening and citrus black spot. Other pathogens being investigated are orange rust which causes losses in sugarcane, the Mexican Bromeliad Weevil which is affecting the horticulture

industry, the invasive chilli thrips which are a potential threat to the Florida pepper crops and the Red Palm Mite that can infest palms, ginger plants, bananas and some ornamental plant species. Researchers are looking at genetics of many of these pathogens, developing insecticides and herbicides and developing materials for county agents to use for educational programs and websites. For UF and FAMU, Extension educational programs provide the scientific information in ways that it can best be assimilated by Florida clientele. One example relates to agronomy. Bahia grass is a common and widely used warm-season perennial grass in Florida. However, forage production declines in summer as day length shortens which triggers the plant into reproductive development. This shift reduces available grazing for pasture animals and decreases productivity. Research at UF has released a new cultivar called "UF Riata" which allows forage to continue well after other Bahia grass cultivars decline in productivity. This grass works well on small farms or large operations.

These are just highlights of some of the many research and educational programs taking place in Florida in 2010 that are funded by Hatch, Smith Lever or 1890 Extension funds. All Hatch funds can be found in the CRIS database and all Extension impacts for both UF/IFAS and FAMU/CESTA can be found at http://pdec.ifas.ufl.edu/team_review/yir.shtmlby goal area.

Both UF/IFAS 1862 Extension and research and FAMU/CESTA Extension have completed all requirements of the 2010 AREERA report of accomplishment and we respectfully provide additional information in the body of this report.

Total Actual Amount of professional FTEs/SYs for this State

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	345.0	8.0	90.0	0.0
Actual	428.9	27.0	123.0	0.0

II. Merit Review Process

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

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

2. Brief Explanation

2010 Merit and Peer review Process

Merit Review

Both UF Extension and FAMU Extension programs are part of the same peer review process. Each year peer faculty (both county and state) are asked to review Extension focused programs online and provide a numerical and narrative response which is then compiled and sent to leaders of each focused program area. Three to five faculty make up the review teams. Of the 29 areas reviewed each review team is assigned 3 to 6 focused area to review. This information is then used by the program teams overseeing the program area to complete their annual team review. These Merit review results are posted annually at:

http://pdec.ifas.ufl.edu/meritreview/mrr.shtml

Peer Review

Prior to the initiation of any research project that will be wholly, or in part, funded by federal formula funding, the designated review coordinator (or, in the case of some multi-institutional, regional or multi-state projects or programs, the administrative advisor) calls for a peer review of the proposed research project. A minimum of three peer scientists (i.e., individuals qualified by their status in the same discipline, or a closely related field of science) are selected to read and provide written comments to the appropriate administrator on the proposed project. Results of these peer reviews are kept at the department level.

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.

Stakeholder Input

Both Florida Extension and UF/IFAS research have met the requirements in 2010 for stakeholder inputs. Florida Extension and Research continue to incorporate stakeholder input into the identification of needs and critical issues that fall within the mission of the land-grant university.

Research

UF/IFAS research completed a formal strategic planning process in 2009. This strategic plan called UF/IFAS Research Roadmap looked particularly at research opportunities, core programs for the future, and critical hires necessary to find solutions to the problems and issues identified through the strategic planning process. The information gathered in 2009 by research was used in 2010 to look for new ways to cooperate and combine resources among IFAS units and across the university and beyond. Even though resources are scarce, this process has given IFAS research directions where they can continue to be effective and efficient. This has lead to increased networking among scientists and researcher on campus leading to some interesting and unexpected studies. For example, an IFAS research scientist studying tomatoes has teamed up with a UF psychology professor to develop a better tasting supermarket tomato that will better satisfy consumer tastes while producing higher-yielding crops for farmers.

Florida Extension (FAMU/CESTA and UF/IFAS)

In 2010, Florida continued to obtain stakeholder input through their grassroots advisory committees and one-on-one contact with industry, governmental agencies and other individual stakeholders. All Florida counties have active advisory committees. Most departments have active advisory committees as well as receiving stakeholder input from industry leaders within their programmatic areas. Along with this, UF/IFAS and FAMU/CESTA Extension began a joint Florida

Extension strategic planning process in December of 2010 that will be completed in the Fall of 2011. The schedule and planning process methodology can be found online at https://pdec.ifas.ufl.edu/lrp/.

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.

Both Extension and research use grassroots methods for identifying individuals and groups who can provide input into the needs and issues of the state. Florida Extension knows their counties well. They make it a point of identifying those who may have a holistic understanding of the county such as a commissioner, city manager, or aide. They are aware of those whose understanding is more specific to parts of the community or specific industries, businesses or service areas within the county. From these types of people Florida advisory committees are built. Once there is basic membership the team may recommend others to be added. These advisory committees work closely with the county faculty to provide feedback on needs and to identify others who can provide feedback on additional needs. Most of the departments at UF and at FAMU have advisory committees that provide recommendations as additional individuals and groups need to be identified.

Research uses industry advisory committees, organizations and others to identify individuals and groups who can assist in needs assessment and funding opportunities. There is a strong integration in Florida between Extension and research and faculty frequently provide names to each other of individuals and/or groups who can assist in the needs assessment process.

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.

Florida Extension and Research use a variety of methods for collecting stakeholder input. For Extension advisory committees are a primary source of input. They also receive individual

comments and suggestions via, phone, email, group and one-on-one discussions and other communication methods from industry, business, organizations, home owners, governmental agencies and business personnel . As part of program evaluation faculty will often ask for stakeholder feedback which is then shared with their advisory committees for additional feedback. Both research and extension faculty may ask for stakeholder input through newspaper, radio or television programs that they present. In Florida a formal customer satisfaction survey is done yearly in 12 to 13 counties. Data from this survey affords both Extension and research with additional needs information that is then shared with both research and Extension.

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.

Input given by stakeholders is used to identify the need for research projects and Extension programs that provide the research-based information necessary to solve critical issues, increase economic sustainability and improve quality of life. In particular goal areas are reviewed each year based on input that allows Florida Extension to identify emerging issues for both research and Extension. This helps in the redirection of programs through changes to the logic model concept, adjusting of priorities, requests for faculty expertise in these areas which affects hiring preactices and the moving of resources to meet these needs which may directly affect the budget process. This process is tied to the merit review process and occurs each February/March.

In the late fall of 2010 Florida also began a long range planning process which includes grass-roots interaction with stakeholders and which will provide additional information at the end of 2011 that could impact programs, structure and mission.

Brief Explanation of what you learned from your Stakeholders

The annual Customer Satisfaction Survey conducted with clientele in 13 counties showed in 2010 that Florida Extension and research is providing

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
4577765	1814294	3435188	0

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	4577765	1814294	3205256	0
Actual Matching	4577765	1814294	3205256	0
Actual All Other	4193233	873550	1664342	0
Total Actual Expended	13348763	4502138	8074854	0

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous				
Carryover	0	0	229932	0

V. Planned Program Table of Content

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Global Food Security and Hunger

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
104	Protect Soil from Harmful Effects of Natural Elements	5%	5%	0%	
111	Conservation and Efficient Use of Water	5%	5%	0%	
132	Weather and Climate	5%	5%	0%	
133	Pollution Prevention and Mitigation	5%	5%	0%	
136	Conservation of Biological Diversity	5%	5%	0%	
141	Air Resource Protection and Management	5%	5%	0%	
201	Plant Genome, Genetics, and Genetic Mechanisms	5%	5%	0%	
204	Plant Product Quality and Utility (Preharvest)	5%	5%	0%	
205	Plant Management Systems	5%	5%	0%	
211	Insects, Mites, and Other Arthropods Affecting Plants	5%	5%	0%	
212	Pathogens and Nematodes Affecting Plants	5%	5%	0%	
213	Weeds Affecting Plants	5%	5%	0%	
214	Vertebrates, Mollusks, and Other Pests Affecting Plants	5%	5%	0%	
216	Integrated Pest Management Systems	5%	5%	0%	
307	Animal Management Systems	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%	
502	New and Improved Food Products	5%	5%	0%	
603	Market Economics	5%	5%	0%	
	Total	100%	100%	0%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	80.0	3.0	0.0	0.0
Actual	126.1	11.0	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
1345863	739158	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1345863	739158	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
1345863	739158	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Activites within this program are supported by Extension education in ways that boost Florida agricultural production while also improving the global capacity to meet the growing food demand. These educational activities also provide innovative components to figh hunger by addressing food security for vulnerable populations both in the state and across the world.

2. Brief description of the target audience

General public
Producers
Ranchers/Farmers
Ag Industry
Families
Youth

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	1816563	3419393	0	0

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

Year: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	275	0	275

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 Processing, Distribution, Safety and Security of Food Systems
8	Change in Behavior Processing, Distribution, Safety and Security of Food Systems
9	Change in Condition Processing, Distribution, Safety and Security of Food Systems
10	Change in Knowledge Protecting Florida from Existing and Emerging Pests and Diseases
11	Change in Behavior Protecting Florida from Existing and Emerging Pests and Diseases
12	Change in Condition Protecting Florida from Existing and Emerging Pests and Diseases
13	Change in Knowledge Bio-energy -- Sustaining and Fueling Florida
14	Change in Behavior Bio-energy -- Sustaining and Fueling Florida
15	Change in Condition Bio-energy -- Sustaining and Fueling Florida
16	Change in Knowledge of agricultural and natural resources that provides the fundamental steps toward the capacity building of sustainable rural Florida small farm
17	Change in behavior that has increased production, marketing skills and farm management skills within a socially disadvantaged minority population.

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

- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	100	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
NEW & BEGINNING FARMER PROGRAM
FAMU: Florida farmers entering agriculture face challenges, including high land prices, increasing equipment costs, and government subsidy payments predominantly delivered to larger, more established farmers.

What has been done
. FAMU?s New & Beginning Farmer Program is designed to reduce barriers to farm-entry and improve the likelihood of success. The goal of the program is to use the basic business development model and apply it to agriculture operations; thus, tying business and marketing skills to agriculture, making it a seamless endeavor and increase the likelihood of economic profitability.

Results
The program conducted over 40 intensive, hands-on training activities with youth and adult beginning farmers. 55 adult and youth beginning farmers improved knowledge alternative crop production and management, irrigation, food safety, value-added processing, market development and distribution logistics through on-farm and on-station crop production demonstrations.

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
205	Plant Management Systems

307 Animal Management Systems

603 Market Economics

Outcome #2

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	100	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Reducing the spread of Palmer amaranth. Palmer amaranth populations have been steadily increasing for the last 3-4 years. Many of these populations are resistant to glyphosate, ALS-inhibiting herbicides, or both. One program, headed by Jason Ferrell, has attempted to address the issue in 3 ways. 1. Develop herbicide programs that will be effective, regardless if herbicide resistance is present, 2. Provide information to county faculty and stakeholders about the importance of identification and early intervention and, 3. Determine to what extent these populations are resistant and to which herbicides.

What has been done
?EDIS publications (short, peer-reviewed documents published in-house, online).
?New faculty orientation and other In-service trainings.
?Presentations at producer meetings.
?On-farm visits and field days.

Results
The majority of the current Palmer amaranth infestation is in the central panhandle, but is moving westward each year. Although the population in Escambia county is not yet severe (poling shows that 50% of crop producers have Palmer amaranth on less than 5% of their acreage), 70% of respondents indicated that they are preemptively employing management programs to reduce the spread of this weed. This indicates that producers are aware of the threat and have adopted a proactive management strategy.

Secondly, FDACS has been made aware of the threat of this weed. This program helped develop an action plan detailing a new way to apply herbicides in Palmer amaranth infested peanuts. Though not previously labeled in this manner, FDACS granted a 24C (special local needs) pesticide label for selective application of Gramoxone Inteon. This provides the only way to manage larger Palmer amaranth that is present late in the season, prior to peanut harvest.

4. Associated Knowledge Areas

KA Code	Knowledge Area
136	Conservation of Biological Diversity
205	Plant Management Systems
213	Weeds Affecting Plants
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	Quantitative Target	Actual
2010	100	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Bahiagrass is the most common and widely used warm-season perennial grass in Florida. This grass is popular because of its adaptation to low soil fertility and low input management. However, forage production declines in summer as day length shortens ? triggering the plant into reproductive development. This shift reduces available grazing for pasture animals. The Forage Breeding program at UF in conjunction with the Forage Management program tested, developed, and released the improved cultivar ?UF Riata?. This cultivar is less sensitive to day length, cool temperatures, and certain diseases. UF Riata allows forage production to continue well after other bahiagrass cultivars decline in productivity as they enter the reproductive phase. Additionally, UF-Riata is less cold sensitive than other cultivars allowing grazing to begin earlier in the spring and later in the fall. All these traits combine to lengthen available grazing throughout

the season, making the system more profitable.

What has been done

?Increase the number of county faculty and stakeholders that adopt the use of the new cultivar bred for extended growth in the spring and fall, together with the management for production of this new cultivar.
?Increase the number of county faculty recommending the new option for bahiagrass when additional production is desired in the fall and early spring.
?Increase the number of commodity stakeholders that use the new cultivar and the management required for sustained and long term production and survival.

Results

UF Riata is a novel cultivar and is the first bahiagrass that brings extend forage production during the critical period for livestock production. As with any new cultivar, seed is initially limited. But UF-Riata has been enthusiastically accepted by producers. Since its release, all available seed has been sold out each season. This fact indicates that producers have embraced this new bahiagrass cultivar.Research reports indicate that UF Riata will consistently produce 10-25% more biomass that other bahiagrass cultivars. Additionally, UF Riata has shown to have forage quality similar to other bahiagrasses, so no penalty is observed from utilizing this new forage cultivar. UF Riata is still a relatively new release and it is currently difficult to determine the level of savings gained from implementation of this forage. However, it is hypothesized that feeding of conserved forages (hay, winter grazing, etc) can be reduced by by 1 month if UF Riata is implemented. This translates into a considerable time and economic saving for cattle producers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
104	Protect Soil from Harmful Effects of Natural Elements
111	Conservation and Efficient Use of Water
132	Weather and Climate
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
307	Animal Management Systems
502	New and Improved 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

- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	100	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
FAMU: Access to profitable markets is perhaps the single most influential factor in determining the viability of small-scale, particularly limited resource, farms. Limited resource farmers in Florida have historically had limited access to viable and profitable markets, often resulting in low prices for products and decreased profitability of farm operations.

What has been done
Farm to School is designed to introduce schools as an alternative market opportunity for small farmers. Schools can prove remunerative, and serve as a stable and consistent market for small-scale producers because of the size of the population served seldom vary significantly and set menus are served at regular intervals. Group education sessions and hands-on training demonstrations were conducted with small farmers.

Results
. Over thirty farmers improved knowledge in incorporating schools as markets for their farm operations. 50 people improved knowledge of food safety and insurance liability requirements related to marketing to schools. Five participating small farmers incorporated schools as alternative market for locally/ regionally grown fruit and vegetables.

Thirty (30) school food directors/personnel from twenty-two (22) Florida school districts received training in developing Farm to School efforts.

Three (3) farmers participating in on-farm demonstration training activities produced total of 8 acres of green beans used for Farm to School marketing pilot for thirteen Florida school districts.

Two (2) strawberry producers piloted strawberries in one school district in FL and two school districts in AL.

Thirteen Florida (13) school districts, serving 300,000 school children, improved nutritional value of school meals due to incorporating local and regional fresh produce; schools purchased approximately 100,000 lbs. of fresh produce grown by small and medium-sized farmers.

4. Associated Knowledge Areas

KA Code	Knowledge Area

502	New and Improved 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	Quantitative Target	Actual
2010	100	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Improved marketing and bookkeeping skills can have a direct impact on financial security.

What has been done
In one program 128 small farmers attended a program on product marketing.

Results
100% of participants learned at least one new technique for marketing their product as indicated by the exit survey. 100% responded on the follow-up survey indicated use of a new marketing strategy for their operation, if productes were involved in their operation to date of the survey; Success story: One participant in the spring 2010 class said she had networked with other partipants and found this very valuable. She had attended an additional class by NRCS, one of the participants farms and had updated to a newer version of Quickbooks based on informtion from the training. She had also learned about new marketing opportunities that she is implementing with her berry business.

4. Associated Knowledge Areas

KA Code	Knowledge Area
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

Not Reporting on this Outcome Measure

Outcome #7

1. Outcome Measures

Change in Knowledge Processing, Distribution, Safety and Security of Food Systems

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	100	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
FAMU: Florida A&M University (FAMU), Cooperative Extension Program spearhead the first National Goat Conference in the U.S. in 2010 which has now become an 1890 initiative. Over 475 participant attended from across the nation and beyond.

What has been done
The conference attendees included goat and sheep producers, agricultural professionals, community-based organizations, and state and federal agencies. International guests included participants from the Bahamas, Trinidad, and St. Vincent and the Grenadines. According to the conference survey, 38% of the attendees were African-Americans, 38% were white of European Ancestry, 6.61% were white Hispanic, 4.96% were African, 4% were Caribbean Black, 2.48% were Asian, 2.48% were Native American while 1.65% identified themselves as Black Hispanic. Thus, 62% of the conference participants were minorities. The data strongly suggests that in order to increase minority participation in training activities of this nature, 1890 universities must be involved.

Results
The survey also revealed that 76% of the small ruminant producers earn $5,000 or less from their

farm business. The results indicate that the producers that attended this conference require further assistance to improve their economic well-being. Eighty-four percent to 89% of the participants at the conference ranked the animal nutrition, marketing, pasture management, and herd health sessions as either very important to extremely important while 61.57% found food safety very important or extremely important. Furthermore 74.78% (combined percentages from very confident or extremely confident) of the producers were confident that they will be able to apply the knowledge they gained at the conference on their farm while only 1.80% were not confident that they would be able to apply what they learned on their farm. The data further showed that the educational information met the needs of most individuals that attended the conference.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
315	Animal Welfare/Well-Being and Protection
405	Drainage and Irrigation Systems and Facilities
502	New and Improved Food Products
603	Market Economics

Outcome #8

1. Outcome Measures

Change in Behavior Processing, Distribution, Safety and Security of Food Systems

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	100	475

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

In 2010, 276 small farm producers, including those new to farming or interesting in expanding their farm operation by starting a new farm enterprise attend five extension programs that provided knowledge and skills in alternative crop production, muscadine grape production, nematode pest control option and pesticide-use and safety to better manage their farm business operation and the environment. These support NIFA?s priority focus areas in Global Food Security and Hunger, Climate Change, and Food Safety.

What has been done
New farm crop (alternative enterprise) start-ups by beginning farmers, those that are new to farming or existing farmers provides consumers with more choices, selection and availability fresh fruits and vegetables in the market.

Proper cultural practices for Muscadine grape help to maintain the growth and development of fresh fruit and wine industry.

Results
Fifty-eight participated in the Muscadine Grape Culture program that provided growers, hobbyist, and grape enthusiast production and pruning practices.

Fifty-eight participants gained knowledge and skills related to Muscadine grape culture, specifically relating to pruning of young, mature, and older grape vines.

Thirty-eight gained knowledge and production techniques needed to begin a new farm operation or alternative enterprise relating to Satsuma, cut flower, aquaculture, collard greens and vegetable production. Other topics included marketing, farm to school, and small ruminant grazing systems.

Seventy-five percent said that the program has increased their economic return/profitability

Another 75 % said that because of this program it has created the ability to improve their community sustainability without damaging future generation?s ability to provide for themselves.

Two farm clientele were assisted in the development of a farm management plan, one for blueberries and one for Satsuma production, in 2010.

Fifty participants gained knowledge and skills on practices to lower the risk and exposure of pesticides to the environment.

4. Associated Knowledge Areas

KA Code	Knowledge Area
104	Protect Soil from Harmful Effects of Natural Elements
111	Conservation and Efficient Use of Water
205	Plant Management Systems
213	Weeds Affecting Plants
502	New and Improved Food Products
603	Market Economics

Outcome #9

1. Outcome Measures

Change in Condition Processing, Distribution, Safety and Security of Food Systems

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	100	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Pesticide use can lead to serious health issues as well as affecting the environment adversely. For this reason it is important that professionals and those who handle pesticides be properly certified. Those who are certified also often find that having the certification can increase their income. According to the department of health and human services poverty guidelines a household with 3 members with an annual income of $18,310 is considered under the poverty level.

What has been done
One county in Florida oversees the certification process for those doing pesticide application.

Results
In this county in 2010 a total of 37 professional landscapers in one training took the pesticide test for the limited commercial certification landscape maintenance. A telephone survey was conducted to measure the salary economic impact of 17 hispanic certified applicators. Of these 17, 7 had an increase in pay of $1.18 cents per hour which represents $2,254 more per year for each person. In another training, 9 certified applicators that completed their requirements for certification under Extension training moved from $19,104 annual salary to $24,672 bringing them well above the poverty level. These certified applicators do a better job of protecting the community environment because they now use correct methods of application and the increase in salary also benefits the community.

4. Associated Knowledge Areas

KA Code	Knowledge Area

133	Pollution Prevention and Mitigation
136	Conservation of Biological Diversity
216	Integrated Pest Management Systems
603	Market Economics

Outcome #10

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	100	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Because of tropical weather conditions dairy sanitation and health of herds can be an issue.

What has been done
Specialists and county faculty have been working iwth the increasing numbers of smaller dairies in the state to improve sanitation and herd health.

Results
With the increase in smaller grazing dairies in the state state and county faculty have been working with smaller grazing dairies and have addressed the problems with milk quality and sanatition on these dairies as well as ways to reduce the effects of heat stress by using shade and modifying irrigation sprinklers to cool the cows without creating muddy pastures. Muddy pastures can increase the occurance of mastitis and effect milk quality and quantity. These BMPs increase both herd health, sanitation and economic stability which in turn effects the county tax revenue, the environment and human health which can be impacted by animal sanitation issues.

4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems

315 Animal Welfare/Well-Being and Protection

502 New and Improved Food Products

603 Market Economics

Outcome #11

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	Quantitative Target	Actual
2010	100	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Tropical soda apple (TSA) is a serious weed problem in many perennial grass pastures of Florida. Having foliage unpalatable to livestock and highly viable seed, this noxious weed can infest a pasture or native land within 1 to 2 years resulting in lower stocking rates (animals per acre). Geographically, the incidence of this plant in Florida has been highest in the south though it has been observed throughout the entire state and has spread outside of Florida to other southern states. TSA has been observed as a weed in pastures, ditch banks, citrus groves, sugar cane fields, vegetable fields, and rangeland. It is spread by humans and animals, and appears to be restricted to semi-disturbed sites. TSA flowers and produces fruit throughout the year though it is concentrated from September to May. One plant will produce 40,000-50,000 seeds with seed germination ranging from 75%-100%.

What has been done
Educational methods included presentations on TSA biology and management, publications, posters, brochures, institutional websites, photographs, descriptions of best management practices, training in releasing the beetles, online courses, multimedia presentations, identification guides, and biological control manual. Polycom® has been particularly useful for distance delivery of information to large audiences at a statewide level. Typically, speaker presentations were delivered using PowerPoint format.

Results

Demonstration of the population level effects of the beetle, Gratiana boliviana, on tropical soda apple provided clear evidence of the effectiveness of biological control. Gratiana boliviana reduced the density of TSA after one year from the time of release. For example, the initial density of TSA at a site was 10 plants per 40 square feet; however, after one year, only two plants were found in the same area. In another area, density of TSA was 4-5 times higher at one of the locations than at the other three sites, but within three years, TSA density at the high density site had declined 90%. Beetle populations increased in numbers during the spring and summer severely damaging the plants. In the fall, as temperatures cooled and day-length shortened, the beetles entered a dormant stage and populations decreased until the following spring. Because populations of TSA continued to increase in the southeastern United States, it was imperative for Extension Specialists and Agents to assist in preventing the spread of TSA within and across the Florida border. Although the movement of TSA seed by wildlife cannot be prevented, it helped to restrict the movement of TSA seed by cleaning all equipment when leaving an infested pasture. Extension demonstrations have served to assure decontamination of vehicles, mowers, tractors, clothes, and shoes. Cattle also transport TSA seeds, so Livestock Agents instructed ranchers to ship cattle from areas that do not have TSA or are TSA-fruit free. Mowing a TSA-infested pasture prior to shipping eliminated the fruit and the consumption of TSA seed by the cattle. The TSA seed can remain viable in the digestive tract for up to six days. Therefore, Livestock Agents informed buyers of cattle to hold them in one area for up to six days to avoid the spread of TSA. Large areas of Florida will be TSA-free, thus providing more usable ranchland for grazing cattle. The economic impact of TSA on Florida grazing land ranged from $6.5 to $16 million annually. This impact has been reduced substantially.

4. Associated Knowledge Areas

KA Code	Knowledge Area
211	Insects, Mites, and Other Arthropods Affecting Plants
213	Weeds Affecting Plants
214	Vertebrates, Mollusks, and Other Pests Affecting Plants
216	Integrated Pest Management Systems

Outcome #12

1. Outcome Measures

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

Not Reporting on this Outcome Measure

Outcome #13

1. Outcome Measures

Change in Knowledge Bio-energy -- Sustaining and Fueling Florida

Not Reporting on this Outcome Measure

Outcome #14

1. Outcome Measures

Change in Behavior Bio-energy -- Sustaining and Fueling Florida

Not Reporting on this Outcome Measure

Outcome #15

1. Outcome Measures

Change in Condition Bio-energy -- Sustaining and Fueling Florida

Not Reporting on this Outcome Measure

Outcome #16

1. Outcome Measures

Change in Knowledge of agricultural and natural resources that provides the fundamental steps toward the capacity building of sustainable rural Florida small farm

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

FAMU: A key issue within global agricultural research and development is the need to positively focus on the sustainable development of small farmers, resource poor farmers and their families. Though these farmers make up about 90% of the worlds farmers, generally they have not had equal access and participation in programs and training designed to assist large producers and agribusiness. The 2007 USDA Census suggested that approximately 91% of all farms in the United States are small farms- an increase from previous census.

What has been done

Developed and implementing the FAMU Statewide Small Farm Programs. FAMU Statewide Small Farm Programs is an active participatory capacity building program - designed and to assist and equip farming populations and their families toward a sustainable development. The Program uses a holistic, participatory, multidisciplinary, systems approach to provide relevant educational opportunities, technical information and hands-on training to underserved rural and urban farming populations and their communities.

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
104	Protect Soil from Harmful Effects of Natural Elements
111	Conservation and Efficient Use of Water
132	Weather and Climate
133	Pollution Prevention and Mitigation
136	Conservation of Biological Diversity
141	Air Resource Protection and Management
201	Plant Genome, Genetics, and Genetic Mechanisms
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
307	Animal Management Systems
315	Animal Welfare/Well-Being and Protection
405	Drainage and Irrigation Systems and Facilities
502	New and Improved Food Products
603	Market Economics

Outcome #17

1. Outcome Measures

Change in behavior that has increased production, marketing skills and farm management skills within a socially disadvantaged minority population.

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
FAMU: The Situation: The majority of socially disadvantaged minorities, especially those classified as beginning farmers and ranchers, lack the basic production, marketing and farm management skills, required to build sustainable farm enterprises.

What has been done
Expansion of clientele: We have added the following counties in order to serve a wider audience: Jackson, Escambia, Washington, Gadsden, Leon, Manatee, Sarasota and Charlotte.
Development of information resources for continuing outreach activities and information dissemination: Informational resources (Websites, printed hand-outs, PowerPoint presentations, on-farm demonstrations & hands-on training/assistance have been developed and are being utilized for training & outreach purposes.

Results
1.Seventy five (75) new participants (including 40 youth) have been trained in hands-on in production, value-added processing, market development and distribution techniques.
2.Ten (10) youth have started agricultural business ventures (production, value-added processing and marketing)
3.An increase in farm output and profits over previous years. Approximately 300 dozen of collards are now being produced per acre. At a market price of $10/dozen, individual farmers are realizing earnings of $2,500 per

A visible change in attitudes
4. One African-American owned chain store has developed as a result of our outreach activities.
5.Four (4) new school districts incorporating salad mixes, fresh cut beans and collard greens into their school meal programs.
6.A majority of participants have shown optimism and enthusiasm with regards to their businesses. More energy is now being directed towards their farming operations. For example, participants are also taking the initiative to identify their own markets rather than waiting for markets to be identified for them.

4. Associated Knowledge Areas

KA Code	Knowledge Area
502	New and Improved Food Products

603 Market Economics

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Florida is presently being affected by the economic issues plaguing the world. There are also public policy changes, governemtn regulations and reduced appropriations affecting Extension and the land-grant university as a whole. There are competing programmatic challenges and the general public tired from years of stress and uncertainity are also reacting negatively as they try to save their jobs and homes. Florida has also been told to expect another 3 to 6% reduction in legislative funds and as counties are also being cut back by the state it is expected that IFAS and especially Extension will be seriously impacted.

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

Evaluation Results

Florida's agriculture and natural resources industries comprise a wide array of economic activities, including commodity production, food and kindred product processing/manufacturing, wholesale and retail distribution, and associated input suppliers and support services. Some of the major commodities produced are fruits, vegetables, livestock, meat and dairy, forest products, ornamental plants, seafood, and sugar. In addition to farms, forests and fisheries, the industry includes allied activities such as mining, fertilizer manufacturing, sawmills, fruit and vegetable processing, landscaping, food stores, restaurants, building material & garden stores, pest control, golf courses and recreational fishing.
The total economic impacts of these industry sectors on the Florida economy were estimated using a regional economic model, which captures the multiplier effects of the input supply chain and employee household spending (Hodges, Rahmani and Mulkey, 2008, http://edis.ifas.ufl.edu/fe800). In 2007, these industries in Florida collectively...
• Produced $128 billion in output or sales revenues (expressed in 2008 dollars), and generated $60 billion in revenues for other economic sectors due to supply chain and employee spending (multiplier effects), thus providing nearly $188 billion in total output impacts.
• Had foreign and domestic exports and sales to Florida visitors valued at $45 billion.
• Generated $59 billion in value added (personal income and business profits), which represented 8.2 percent of the Gross State Product of Florida ($716 billion), and including

multiplier effects had total value added impacts of $93 billion.

• Provided direct employment of 1.37 million fulltime and part-time jobs, representing 13.3 percent of all jobs in the state, ranking second among major industry groups, and generated total statewide employment impacts of 1.87 million jobs, and labor income impacts of $61 billion.

• Generated indirect business taxes paid to local, state and federal governments of $10.5 billion.

The economic benefits of agriculture/natural resources are felt at local, state and international levels. In some rural counties, agriculture is the largest component of the economy. Much of Florida's agricultural products are exported outside the state, which brings new money into the regional economy, giving rise to economic multiplier effects. These industries remain a dynamic part of the economy, with value added impact growing at an average annual growth rate of nearly 4 percent since 2001. In addition, these industries managed nearly 24 million acres (36,000 square miles) in forests, crops, and pasture land uses, or about two-thirds of the state's land area. These lands provide valuable non-marketed environmental services for water supply, water quality improvement, pollution abatement, erosion control and shoreline protection, carbon sequestration and climate stabilization, wildlife habitat, and open space for community buffers and outdoor recreation

In spite of the important contributions of agriculture/natural resources to the state's economy, environmental and social well-being, a large and growing number of Florida residents and visitors are unaware of its contributions. Focus groups conducted by the Center for Public Issues Education indicate that many consumers in Florida have widely divergent and inconsistent understanding of common terms used to describe agriculture and food systems. This lack of awareness leads to policy decisions that may inhibit the industry's ability to compete in a global market. Rapid population growth places increasing pressures on land, water and environmental quality. As a consequence, the agriculture/natural resources sector continues to be challenged for resources including land, water, labor, and other inputs.

The Florida Cooperative Extension service has established public educational programs designed to increase knowledge about agricultural operations, markets, and domestic policies that impact the agricultural industry. These efforts create a more informed voting public so that wise choices can be made to improve the economic viability of the industry, while assuring safe, healthy, and affordable supplies of food, fiber and other commodities for consumers.

Key Items of Evaluation

Economic loss resulting from disease in Florida's ornamental aquaculture industry has been estimated by producers to be a minimum of $6-10 million dollars annually. In addition, aquarium hobbyists' poor understanding of environmental disease is considered a major reason that this end-user group leaves the hobby. Consequently, reduction in disease losses and development of practical approaches to fish health management are important for increasing the profitability and satisfaction of the industry at all levels, from producer to consumer.

• A total of 340 clinical cases were submitted by industry for disease and health evaluation. Industry personnel indicated through one-on-teachable moments and follow-

ups changes in management to control specific diseases diagnosed on their facility. Numerous clients indicated savings in the thousands of dollars from our fish health programs. For example, three producers, specifically, indicated increased revenues in 2010 for their respective companies--directly due to action-based/application of information learned from our fish health programs--of $80,000; $282,000; and approximately $1,000,000.

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Maintain, Conserve and Enhance Florida's Natural Environment

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	5%	5%	0%	
103	Management of Saline and Sodic Soils and Salinity	5%	5%	0%	
104	Protect Soil from Harmful Effects of Natural Elements	5%	5%	0%	
111	Conservation and Efficient Use of Water	5%	5%	0%	
112	Watershed Protection and Management	5%	5%	0%	
131	Alternative Uses of Land	5%	5%	0%	
132	Weather and Climate	5%	5%	0%	
133	Pollution Prevention and Mitigation	5%	5%	0%	
134	Outdoor Recreation	5%	5%	0%	
135	Aquatic and Terrestrial Wildlife	5%	5%	0%	
136	Conservation of Biological Diversity	5%	5%	0%	
141	Air Resource Protection and Management	5%	5%	0%	
216	Integrated Pest Management Systems	5%	5%	0%	
403	Waste Disposal, Recycling, and Reuse	5%	5%	0%	
605	Natural Resource and Environmental Economics	5%	5%	0%	
608	Community Resource Planning and Development	5%	5%	0%	
610	Domestic Policy Analysis	5%	5%	0%	
723	Hazards to Human Health and Safety	5%	5%	0%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	5%	5%	0%	
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	5%	5%	0%	
	Total	100%	100%	0%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	20.0	1.0	0.0	0.0
Actual	39.4	1.0	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
420697	67196	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
420697	67196	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
420697	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The supply and quality of Florida's water resources will degrade unless critical target audiences are educated about water conservation and water quality protection. Florida Cooperative Extension provides best management practice (BMP) education and research for the conservation and efficient use of water, uses of land, pollution prevention and mitigation, and watershed protection. Through adoption of BMPs, Florida's environment will be less impacted by business and industry, governmental agencies, and human activity. These changes will improve the condition of Florida's water resources, increase the economic condition of Florida's natural resource and agricultural industries, and improve the quality of life of all residents of Florida

Marine sportfishing is an important source of economic activity in Florida's coastal communities. The proper management of the targeted stocks of fish is critical to the long term sustainability of the recreational fisheries that utilize these stocks. Anglers need to utilize proper handling and release methods to help reduce release mortality, a significant component of total mortality in all species of fish targeted, but particular with reef fishes. In addition, the development of artificial reef programs further supports the economic activities. The further understanding of the ecological and economic contribution of artificial reefs is key to the long term management of Florida's reef fish species and the coastal communities and stakeholders who utilize them. IFAS Extension can make a difference by better educating marine anglers regarding proper handling and release methods for recreationally caught species of finfish. In addition, helping stakeholders better understand the ecological and economic benefits of artificial reefs will help local communities better utilize scarce resources for program development, education, etc.

2. Brief description of the target audience

Ag and horicultural producers and their allied industirs
Landscape managers
engineers and planners and landscape architects
Governement agencies
Florida homeowners and residents
Recreational anglers
general public
local marine resource agencies
state marine resource management agencies
trade associations.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	574023	1080508	0	0

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

Patent Applications Submitted

Year: 2010
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	102	0	143

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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

Outcome #1

1. **Outcome Measures**

   Change in Knowledge Water Resources

   Not Reporting on this Outcome Measure

Outcome #2

1. **Outcome Measures**

   Change in Behavior Water Resources

   Not Reporting on this Outcome Measure

Outcome #3

1. **Outcome Measures**

   Change in Condition Water Resources

   Not Reporting on this Outcome Measure

Outcome #4

1. **Outcome Measures**

   Change in Knowledge Sustainable Use of Freshwater and Terrestrial Ecosystems

   Not Reporting on this Outcome Measure

Outcome #5

1. **Outcome Measures**

   Change in Behavior Sustainable Use of Freshwater and Terrestrial Ecosystems

2. **Associated Institution Types**

   - 1862 Extension
   - 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	100	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The City of Orlando recently collaborated with an Extension program involving the value of urban forests.

What has been done
Using the tools and techniques developed by an Extension specialist in the School of Forest Resources they completed their first urban forest assessment for the city. The report estimated the annual economic benefits of their urban forest's ecosystem serives of air pollution removal, carbon dioxide sequestration, and energy use reduction have been valued at $1.9 million. In addition they have estimated the amount of stormwater reduction by the City's tree canopy. This information is being used to develop cost-effective maintenance schedules and effective tree protection and urban development ordinances.

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
131	Alternative Uses of Land
133	Pollution Prevention and Mitigation
608	Community Resource Planning and Development
610	Domestic Policy Analysis

Outcome #6

1. Outcome Measures

Change in Condition Sustainable Use of Freshwater and Terrestrial Ecosystems

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	100	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
With the increasing populations in Florida constantly infringing on the wildlife and wildlife habitates having Master Naturalists who can train the public in ways to protect both themselves and the environment is critical. According to a recent Florida visitors study, tourism is Florida's top industry accounting for more than 20% of the state's economy. For one small Florida county the potential economic benefit per year is $684,000.

What has been done
In this county in 2010 19 adults completed the 40 required contact hours of the Floirda Master Naturalist Program. Since they are ecotourism guides, educators and state park employees and others that interact with tourists they will have a direct impact on this economic benefit.

Results
Besides impacting tourists there are benefits to residents. In one success story from this same county, one of the Master Naturalists had just completed an educational program with a local school. Based on what they learned, one youth, a five-year old, correctly identified a dangerous snake in the fully occupied school play ground and notified the Master Naturalist, a volunteer at the school, who removed the snake avoiding any harm to the children or the snake.

4. Associated Knowledge Areas

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife
723	Hazards to Human Health and Safety

Outcome #7

1. Outcome Measures

Change in Knowledge Environmental Education

Not Reporting on this Outcome Measure

Outcome #8

1. Outcome Measures

Change in Behavior Environmental Education

Not Reporting on this Outcome Measure

Outcome #9

1. Outcome Measures

Change in Condition Environmental Education

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	50	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Master Naturalists engage the public through speaking events, educational displays, guided tours and other informal educational programs that provide much needed information on the tropical Florida enviroment and how to keep both wildlife and humans safe.

What has been done
In one county graduates of the Master Naturalist porgrma volunteered 981 hours in local parks, schools and at community events in 2010.

Results
These hours represented a $20,453 economic value to the City of Jacksonville. According to the annual surveys of the master naturalist graduates three educational displays developed for the Museum of Science and History and the City of Jacksonville have educated over 250,000 individuals.

4. Associated Knowledge Areas

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife
605	Natural Resource and Environmental Economics
723	Hazards to Human Health and Safety

Outcome #10

1. Outcome Measures

Change in Knowledge Sustainable Use of Coastal and Marine Ecosystems

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	100	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
111	Conservation and Efficient Use of Water
135	Aquatic and Terrestrial Wildlife

Outcome #11

1. Outcome Measures

Change in Behavior Sustainable Use of Coastal and Marine Ecosystems

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	50	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
111	Conservation and Efficient Use of Water
135	Aquatic and Terrestrial Wildlife

Outcome #12

1. **Outcome Measures**

Change in Condition Sustainable Use of Coastal and Marine Ecosystems

Not Reporting on this Outcome Measure

Outcome #13

1. **Outcome Measures**

Change in Knowledge Climate Variability and Change

Not Reporting on this Outcome Measure

Outcome #14

1. **Outcome Measures**

Change in Behavior Climate Variability and Change

Not Reporting on this Outcome Measure

Outcome #15

1. **Outcome Measures**

Change in Condition Climate Variability and Change

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

The weak economy and reduction of funding through appropriation changes,

competing public priorities and programmatic challenges continue to impact programs in Florida. Also, weather conditions common to the tropics including hurricanes, weather extremes from drought to flooding have impacted Florida over the past year.

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

Evaluation Results

Key Items of Evaluation

In 2010 the Indian River Oyster Reef Restoration Program continuted to expand in scope and public participation. At each event (12 in 2010) a Florida Extension agent presented an educational seminar describing the ecological importance of oyster reefs and their restoration in maintaining water quality of the Indian River Lagoon and Florida's coastal estuaries. Collaborating with St. Lucie county Department of Engineering and the Florida Oceanographic Society, the program has deployed an estimated 3,720 square feet of oyster reef around Spoil Island SL 18B, which translates inton about 2,382 bags--at a conservative value of 20 lbs. per bag, about 74,400 lbs of oyster cultch, approximately double from 2009. Over 230 volunteers have contibuted approximatley 710 volunteer hours in support of the program, valued at $12,500. This successful program is now in the process of securing permits for over 10 acres in the Indian River Lagoon scheduled for deployment in 2011.

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

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

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 professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	60.0	2.0	0.0	0.0
Actual	93.0	3.0	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
993375	201588	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
993375	201588	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
993375	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Life skills developed in youth through subject matter experience

1.Youth participate in at least 6 hours of learning 4-H subject matter during the year through 4-H club projects, classroom, afterschool or camping experiences.

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

activities.

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

Organizational strategies and learning environment for youth programs

4-H Clubs:

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

2. Quality management of chartering process

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

4-H In the Classroom

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

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

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

4-H Residential / Day Camping

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

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

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

Advisory Committees

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

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

Expansion and Review Committee

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

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

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

Volunteer Development

- Written position description will be completed.

-Workshops and activities will be completed related to child protection

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

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

-Project training workshops/seminars will be held.

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

2. Brief description of the target audience

Youth ages 5-18 enrolled in Florida 4-H programs
Adult and youth volunteers in the 4-H program
Florida families with youth enrolled in the 4-H program between the ages of 5 and 18
Parents and grandparents of youth ages 5-18 in the 4-H program

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

Adults/volunteers interested in engaging in positive youth development

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	930907	1080508	0	0

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

Patent Applications Submitted

Year: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	40	0	40

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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

Outcome #1

1. Outcome Measures

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

Not Reporting on this Outcome Measure

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	Quantitative Target	Actual
2010	100	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
To develop marketable/productive skills for work and family life has been sited by Connell, Gambone, and Smith (2000) as a major outcome for positive youth development. Learning to be productive; do well in school; develop positive outside interests and acquire fundamental life skills for work; and family life is a basic transition from youth to adulthood.

4-H uses a variety of project skills to engage youth in areas of interests to not only acquire new skills but become the "vehicle" through which youth engage with other adults, engage in self-directed learning, setting goals, making independent choices, and decisions, and gaining a sense of mastery and accomplishment from their experiences. This allows individuals to make informed decisions with a better understanding of long and short-term consequences of their choices and impact on others. The purpose of this program is to build positive support in the community for the 4-H program, while involving more youth and volunteers.

Research studies indicate that the more internal assets and life skills/competencies youth build the more likely they are to grow up healthy, confident and responsible and less likely to become involved in risky behaviors. Active participation in 4-H helps youth develop their assets and life

skills. Participation helps to develop assets no matter the delivery mode: community clubs, 4-H in the classroom programs, residential camps, day camps and events/activities.

What has been done

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.

Results

University of Florida Extension 4-H Life Skills programs enrolled 107,472 youth in science, engineering and technology programs with youth focused on technology, animal, biological, environmental, physical and plant sciences. Additionally, 142,812 youth were educated through participation in communications, citizenship and civic engagement experiences and another 36,619 were engaged in healthy lifestyle educational programs during 2009-10 program year. Within these programs, 234 faculty devoted time to youth education and the development of youth life skills of: 1) decision-making, problem solving and self-responsibility; and 2) communication, leadership and workforce preparation, in addition to specific subject-matter knowledge or adopted practices. Faculty evaluated 108,655 youth (38% of 286,903 youth enrolled) for change in knowledge as a result of 4-H with 86.3% reporting change in knowledge; 42,259 evaluated for changes in behavior/practices with 79.5% reporting changes. 4-H educational programs often provide added benefits and life-changing impact to the more than 7,655 adult volunteers or classroom teachers contributing 316,068 volunteer hours for a value of $5,771,402. (calculation of economic value of trained volunteers? contribution to extension programs according to 2009 Florida data from the Independent Sector computations of $18. 20 per hour).

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	Quantitative Target	Actual
2010	100	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The ability to speak is an important skill for youth that increases their ability to both socialize and learn.

What has been done
Youth in grades 4th, 5th and 6th in one Florida county school system were taught skills needed to properly write and present a three minute speech. Through the County 4-H/Tropicana Public Speaking Contest, youth were engaged in properly learning how to write and present a speech--teaching them an important lifeskill to be utilzed throughout every aspect of life.

Results
Not only were these students learning to properly give a speech, they were learning leadership and developing confidence tht will enable them to be productive citizens of the community in which they live. After the completition of the county contest, some of the winners were able to speak at various functions in the county. After one of the winners spoke at the Farm Bureau dinner, members were so impressed that they approached the Extension Agent in charge to let her know what a what wonderful program Tropicana was for youth and how important public speaking is for everyone.

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	Quantitative Target	Actual
2010	20	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
There are many children of active military personnel living in Florida. They have many issues related specifically to having a parent deployed frequently. 4-H programming at military installations provides consistency for youth and families to ease the stress of military family employment. The 4-H club structure and programs are similar to youth and families in the states or overseas deployment with 4-H club meeting and familiar projects and activities. This routine gives consistency and a familiar program for youth to fit into new surroundings at a new military base and state or county.

What has been done
Operation Military Kids (OMK) program offers a very much appreciated community service. In 2010 over 600 military youth participated in the OMK camping program. This is 16% of the current military youth in Florida.

Results
Pre/Post surveys of campers and also post tests that surveyed parents indicated that 100% had learned something new and positive at camp. Over 80% showed positive behavior changes as documented by the parent survey in areas of social skills, responsibility, tolerance and team work.

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	20	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Children need structured programs with involved adults in order to learn the skills they will need as adults. These cost money. Currently, with the economic situation causing severe cutbacks children's programs are being serious affected.

What has been done
In one Florida county the 4-H agent has been actively engaged in finding funds and inkind service to obtained funds and resources to carry out needed programs.

Results
Since 2007, $181,841.83 has been generated for the Washington County 4‐H program in the form of volunteer hours, grant monies, donations and in‐kind contributions. Impacts: This has led to an increase in both volunteer and monetary support of 4‐H programs, events and activities in Washington County. The economic benefit of the Washington County 4‐H program per youth (average of 160 members/year) member is $1,136.51. This in turn allows youth to attend programs, activities and events at lower costs and provides for scholarships for youth to apply to attend events. It also allows Washington County 4‐H to provide materials and supplies for youth rather than charging them for said materials.Washington County 4‐H is successfully reducing the barriers to 4‐H membership by securing money and volunteer support of the county program.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #7

1. Outcome Measures

Change in Knowledge Volunteer Development and Systems to Support Youth

Not Reporting on this Outcome Measure

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	Quantitative Target	Actual
2010	25	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
As social and economic solutions become increasingly more difficult to find, the future will look to today?s youth for answers. Who and what youth are involved with today is often an indicator of their future direction. Across the nation and in Florida, research has shown that youth involved in 4-H are 1.6 times more likely to enroll in college compared to youth enrolled in other out-of-school activities. But viable programs for children require engaged adults working closely with youth.

What has been done
This year more than 240,679 Florida 4-H youth were engaged in 287,818 projects related to science, engineering and technology projects, civic engagement, community service and leadership, food, nutrition, health and personal safety projects. Projects designed to build capacity in youth. These youth development experiences were guided by more than 16,000 adult and youth volunteers each contributing nearly 50 hours annually. Volunteers that provide opportunities for youth to experience 4-H, create safe and inclusive environments and mentor youth in achieving their goals.

Results

Without the involvement of trained volunteers and support of University of Florida faculty these youth development experiences would not be provided. Florida research has shown that more than 50% of the lifeskills developed by 4-H youth are directly related to a caring adult volunteer. The skills learned and capacity developed today by 4-H youth will be the answer to issues surrounding society?s problems including childhood obesity, food safety and security, financial stability, sustainable energy and climate change.

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

Outcome #10

1. Outcome Measures

Change in behavior related to agricultural career exploration

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
FAMU: AgDiscovery program at Florida A&M University (FAMU) targets diverse population of students (14-17 years of age) from across the states, which have displayed interest in animal science and related.

What has been done

Twenty (20) students were selected each program , and were provided hands-on experience through wet labs, workshops and site visits for two weeks. At the end of program, the students were evaluated and the student evaluate and the program.

Results

Results from analysis showed 95 percent of the students agreed that the program has met their learning expectations, and that the program has helped them to decide whether to pursue a career in animal science/veterinary medicine. The program also received direct (via letter) positive feedback from one past student participant regarding the impact of the program on his career choice.

FAMU Veterinary Technology program current has one (1) past AgDiscovery student enrolled in its program, and one (1)in the enrollment process. This will increase the number of veterinary professional thus lead to herd health and subsequent food safety.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Florida is presently being affected by the economic issues plaguing the world. There are also public policy changes, governemtn regulations and reduced appropriations affecting Extension and the land-grant university as a whole. There are competing programmatic challenges and the general public tired from years of stress and uncertainity are also reacting negatively as they try to save their jobs and homes. Florida has also been told to expect another 3 to 6% reduction in legislative funds and as counties are also being cut back by the state it is expected that IFAS and especially Extension will be seriously impacted.

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

Evaluation Results

In 2010 Florida Extension touched the lives of 240,302 youth in organized clubs, special interest clinics, school enrichment, Day camps, and in family 4-H

activities. Research indicates that regular participation in extracurricular activities especially during adolescence can lead to long-term quality of life payoff. Recent studies indicate that youth spending time in positive youth programs are less likely to become involved in high risk behaviors, have higher school attendance, better grades, better condlict management practices and have better work habits.

In the US there has been a decrease in young people going into fields such as science, engineering and technology--all critical to the continued growth and well-being of the United states. In Florida in 2009-2010 youth completed 113,728 projects in these three areas. They also completed 142,960 projects in citizenship and 30,306 projects in healthy lifestyles including projects in food and nutrition and the HEALTH ROCKS! series geared to reduce obesity in children and improve health through healthy eating and exercise.

Key Items of Evaluation

One Florida County has one of the highest incidences of tobacco use among teenagers in Florida. According to the 2008 Florida Youth Substance Abuse Survey, 47% of teenagers in this county have tried cigarettes, and 20.7% of youth surveyed indicated they had smoked cigarettes within the past 30 days. Smokeless tobacco use is also prevalent in the county with 40.1% of respondents indicating past use with 18.6% indicating use within the past 30 days. These staggering statistics are three times higher than the state average. If someone starts smoking or using smokeless tobacco at an early age they have a much higher incidence of gum disease, tooth loss, oral cancer, lung cancer, other cancers, stroke, and heart attack. Tobacco companies spend $15 billion dollars each year in marketing that specifically targets youth, spending more in Florida than any other state (around $881 million).

As a result of the partnership between 4H and SWAT (Students Working Against Tobacco), every elementary school student in this county heard a message on how the tobacco companies are marketing to children and the affects tobacco products have on people's lives. Also 277 County youth signed a tobaccofree pledge. It is hoped these 19 youth will never try tobacco and won't become addicted to these dangerous products, saving themselves and our health care system millions of dollars in the future.

Because of the extremely successful partnership last year between SWAT and 4H, now ALL of the SWAT clubs in the county are also 4H Clubs, with members participating in the new Health Rocks! 4H project. The Quit Doc Research and Education Foundation, a nonprofit organization dedicated to tobacco prevention and education, awarded the County 4H $8,000 to administer the county's SWAT program in 201011.

One of the members of the 4H/SWAT club was very passionate on the subject because she had lost a grandparent to lung disease. She did a 4H demonstration on tobacco use and won 1st place at Florida 4H Congress in her demonstration category. She has now graduated from high school and is continuing to volunteer to help prevent tobacco use in her County; all because of her experience and the efforts of youth in the joint 4H/SWAT club.

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

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

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%	
112	Watershed Protection and Management	5%	0%	0%	
133	Pollution Prevention and Mitigation	5%	0%	0%	
201	Plant Genome, Genetics, and Genetic Mechanisms	5%	0%	0%	
204	Plant Product Quality and Utility (Preharvest)	5%	0%	0%	
205	Plant Management Systems	5%	0%	0%	
206	Basic Plant Biology	5%	0%	0%	
211	Insects, Mites, and Other Arthropods Affecting Plants	5%	0%	0%	
212	Pathogens and Nematodes Affecting Plants	5%	0%	0%	
213	Weeds Affecting Plants	5%	0%	0%	
216	Integrated Pest Management Systems	5%	0%	0%	
405	Drainage and Irrigation Systems and Facilities	5%	0%	0%	
602	Business Management, Finance, and Taxation	5%	0%	0%	
603	Market Economics	5%	0%	0%	
604	Marketing and Distribution Practices	5%	0%	0%	
608	Community Resource Planning and Development	5%	0%	0%	
610	Domestic Policy Analysis	5%	0%	0%	
723	Hazards to Human Health and Safety	5%	0%	0%	
802	Human Development and Family Well-Being	5%	0%	0%	
	Total	100%	0%	0%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	40.0	0.0	0.0	0.0
Actual	83.0	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
886255	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
886255	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
886255	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Florida is one of the most populous and rapidly growing states. Population growth and development pose increasing stress on natural systems and environmental well-being. Currently Florida has over 5 million acres of lawns and urban landscapes. Residents place great importance on landscape appearance and research has shown that well designed landscapes contribute 7 to 11 percent toward the sale value of residential property in the U.S. (Behe et al). Attractive landscapes in commercial settings also contribute to the high amenity values associated with Florida as a tourism destination. The nursery and landscape services industry in Florida in 2007 had total sales of $6.82 billion, which generated $6.57 billion in value added (income) impacts and supported over 140,000 jobs (Hodges and Rahmani, 2009, available at http://edis.ifas.ufl.edu/fe800).
Many Florida homeowners, landscape professionals, builders, developers and residents are not well-informed about the economic and environmental impacts of landscaping practices. Management of urban landscapes with high levels of mowing, fertilization, irrigation and pest control treatments poses challenges to environmental sustainability, and the high cost of environmental mediation may present challenges to their economic sustainability. UF/IFAS recommendations for reduced input use have been widely adopted by commercial growers, but are not commonly followed by landscape professionals or homeowners. Difficult business conditions, including increasing costs of inputs, scarcity of qualified and legal workers, and lack of professionalism in the industry also pose challenges to the economic sustainability of many commercial nursery and landscape companies. Better information is needed on the economic costs and benefits of sustainable nursery production and landscape management practices and the aesthetic values of low-input landscapes. Educational programming by UF/IFAS extension can help to raise awareness about the importance of these practices, and to assist stakeholders in making appropriate choices.

2. Brief description of the target audience

Nursery and greenhouse plant producers
sod producers
landscape service providers
allied trades professionals
commercial developers/builders
property appraisers
Ag Business and Industry
Florida Residents
Government and Regulatory Agencies
UFIFAS Faculty & Staff

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	897942	1690233	0	0

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

Patent Applications Submitted

Year: 2010
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	100	0	100

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 Commercial Horticulture/Urban Forestry Services

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	50	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The nonstop onslaught of new ornamental pests and diseases into Florida has created severe plant production and economic challenges for nurseries and landscape managers. Some recent and especially difficult or severe examples include ficus whitefly, Sri Lanka weevil, pink hibiscus mealybug and Asian citrus psyllid.

What has been done
This program was delivered to twelve locations throughout Florida and Texas via interactive video conferencing technology. It included a four-hours of presentations including Do?s and Don?ts of Pesticides; Quarantines, Import and Export issues; Weed Management in the Nursery, Using Banker Plants and Other Biological Control Methods; Chilli Thrips Control; and Scouting in the Nursery. Presentations and supportive reference materials were provided to attendees. Representatives from product manufacturers provided updates on key products to meet nursery pest management challenges. Support materials and product labels were distributed at each program site. Those attending the programs were highly encouraged to participate in program pre- and post-testing.

Results
On March 9, 2010 the program was delivered to 9 Florida counties and 3 Texas counties. The Florida counties included all major nursery production areas and spanned from Miami-Dade County in south Florida to Gadsden County in north Florida, thus demonstrating statewide appeal. Approximately 150 people attended. At all sites, the pre- and post-test results indicate an increase in knowledge and potential behavior change. The average percent increase in knowledge was 22% for those responding. The intention to change behavior was especially successful with an average of 84% for participants at all program sites.
Geographically, this program had wide appeal and impact with participation from numerous counties throughout Florida and three in Texas with similar plant production problems.

Additionally, although the program was targeted to growers and production practices, approximately half of those attending were employed in the landscape industry. This indicates the critical need for basic pest information and training within the landscape industry, and should result in good participation in the 2011, landscape industry focused program. Nursery participation in 2010 may have indicated the need to explore other ways to more fully reach this audience. A major impact upon nursery attendance was likely the nearly catastrophic drop in plant production and related staffing, and a need to reduce all costs including pest and disease management as a result of the current economic recession.

4. Associated Knowledge Areas

KA Code	Knowledge Area
201	Plant Genome, Genetics, and Genetic Mechanisms
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
603	Market Economics

Outcome #2

1. Outcome Measures

Change in Behavior Commercial Horticulture/Urban Forestry Services

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	50	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Some counties and municipalities in Florida have adopted strict regulations limiting the amount of fertilizers that can be applied to residential landscapes. The Green Industry Best Management Practices (GI-BMP) program is intended to address the need for professional certification of landscape service providers, in order to reduce adverse impacts of fertilizer and pesticide application. Florida Senate Bill 494 requires that all commercial fertilizer applicators have a

license from the Florida Department of Agriculture and Consumers Services by January 2014. To get a license, Green industry workers must be trained in BMPs and receive a certificate of completion from UF-IFAS and Florida Department of Environmental Protection. The goal of the program is to train and certify 100,000 Green industry professionals working in urban landscapes. UF-IFAS faculty in at least 10 counties are leading this educational effort.

What has been done

Green Industry BMP educational curriculum was developed in collaboration with the Florida Department of Agriculture and Consumer Services and the Florida Department of Environmental Protection. The curriculum includes 5 separate class modules. Classes are offered at Extension offices, as special sessions for large companies and by some companies themselves if trainers have completed required certification. In some counties, the classes were offered in English and Spanish, to make the information accessible to typical landscape workers. Tests are administered to measure student learning. Also, pre- and post-program evaluations are conducted by extension faculty to measure behavioral changes. Students successfully passing the class received certification documentation, which entitles them to obtain FDACS certifications and legally apply fertilizer in urban landscapes beginning January 1, 2014.. Also, a train-the-trainer approach is used, with over 200 students recruited to assist in further training of others in their own companies.

Results

In 2010, extension faculty in Florida reported that nearly 2,700 Green industry workers received training under this program. Increase in knowledge of BMPs, as measured by pre- and post-test evaluations averaged 21%, or typically doubled. Surveys of program trainees conducted in some counties indicated that 95% of participants were satisfied with the class, and 78% stated that their landscape practices changed as a result of the training, although a lower percentage of respondents (40 to 70%) reported that they had reduced fertilizer application rates. Overall, 84% of students passed the final exam. Most participants reported little or no decrease in plant health due to reduced fertilization.

4. Associated Knowledge Areas

KA Code	Knowledge Area
101	Appraisal of Soil Resources
102	Soil, Plant, Water, Nutrient Relationships
112	Watershed Protection and Management
133	Pollution Prevention and Mitigation
201	Plant Genome, Genetics, and Genetic Mechanisms
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
206	Basic Plant Biology
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
216	Integrated Pest Management Systems

Outcome #3

1. Outcome Measures

Change in Condition Commercial Horticulture/Urban Forestry Services

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	100	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Trenholm et al. (2009) indicated that Florida‐Friendly Landscaping TM protects natural resources through water conservation, waste and pollution reduction, erosion prevention, and creation of wildlife‐sustaining habitats. However, prior to 2010, no Florida‐Friendly Landscaping TM youth curriculum existed. In addition, according to the 4‐H National Headquarters website (2010), ?America faces a future of intense global competition with a startling shortage of scientists. In fact, only 18 percent of U.S. high school seniors are proficient in science (NAEP 2005) and a mere 5 percent of current U.S. college graduates earn science, engineering, or technology degrees compared to 66 percent in Japan and 59 percent in China.?

What has been done
These needs were addressed by developing 4‐H Florida‐Friendly Landscaping TM Curriculum (4‐H FFL), and support materials, as research indicates that clientele exposure to Extension education information usually leads to adoption of environmental landscape practices (Brown, 2009).

4‐H FFL is designed to enhance students? environmental awareness and stewardship. It

also allows youth to explore the scientific process, including data collection and analysis, interpretation, and protocol formulation and application. 4‐H FFL Curriculum fosters environmental stewardship among youth and allows them to engage in conserving water, soil, and vegetation resources from an early age.

Results

The results of initial pilot studies in Broward County are as follows: 71.1% (n=27) felt that as a result of 4‐H FFL they were able to improve their community. Twenty‐one (55.3%, N=38) youth indicated they had changed their behavior in planting/gardening, pesticide use elimination, feeding birds and planting flowers, water conservation and recycling practices as a result of participating in 4‐H FFL Curriculum pilot test. Youth gained life skills by participating in hands‐on activities designed to increase their understanding of hypothesis formulation, experimental design, and data collection management.

4. Associated Knowledge Areas

KA Code	Knowledge Area
101	Appraisal of Soil Resources
102	Soil, Plant, Water, Nutrient Relationships
206	Basic Plant Biology
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
216	Integrated Pest Management Systems
608	Community Resource Planning and Development

Outcome #5

1. Outcome Measures

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

Not Reporting on this Outcome Measure

Outcome #6

1. Outcome Measures

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

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Florida is presently being affected by the economic issues plaguing the world. There are also public policy changes, governemtn regulations and reduced appropriations affecting Extension and the land-grant university as a whole. There are competing programmatic challenges and the general public tired from years of stress and uncertainity are also reacting negatively as they try to save their jobs and homes. Florida has also been told to expect another 3 to 6% reduction in legislative funds and as counties are also being cut back by the state it is expected that IFAS and especially Extension will be seriously impacted.

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

Evaluation Results

In some locations or regions the quantity of irrigation water for agriculture is restricted. During times of limited rainfall, additional restrictions are imposed. Concomitantly, environmental agencies are demanding that nutrient concentrations of natural waters return to natural levels. Extension personnel have direct access and training using research-based information that will help the nursery and greenhouse cliente, adopt and implement changes to comply with new regulations and reduced water consumption. Change is necessary for clientele to remain economically viable and environmentally compliant in a rapidly urbanizing state.

Key Items of Evaluation

There are approximately 7000 nurseries registered in Florida with the Division of Plant Industry. In the most recent economic study conducted by Hodges and Haydu of the University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS), farm gate value of nursery plants was 3 billion dollars with approximately 58,000 acres of container production and 23,000 acres of field or in-ground production. Many container nurseries are located close to urban markets. Consequently, there is competition for limited water resources. In addition, production practices must be used that result in the least environmental impact and do not contribute to impairment of natural waters. Best Management Practices (BMPs) regarding water use (quantity) and environmental impacts (quality) have been adopted by state of Florida rule.

In some locations or regions the quantity of irrigation water for agriculture is restricted. During times of limited rainfall, additional restrictions are imposed. Concomitantly, environmental agencies are demanding that nutrient concentrations of natural waters return to natural levels. Extension personnel have direct access and training using research-based information that will help the nursery partners, adopt and implement the best practices or changes to comply with new regulations and reduced water consumption. Change is necessary for partners to remain economically viable and environmentally compliant in a rapidly urbanizing state. Nursery and greenhouse operations (83 firms 3074 acres) enrolled in state BMP program. Practices are used (action) that warrant their enrollment.

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
112	Watershed Protection and Management	5%	5%	0%	
136	Conservation of Biological Diversity	5%	5%	0%	
602	Business Management, Finance, and Taxation	5%	5%	0%	
603	Market Economics	5%	5%	0%	
604	Marketing and Distribution Practices	5%	5%	0%	
608	Community Resource Planning and Development	5%	5%	0%	
701	Nutrient Composition of Food	5%	5%	0%	
703	Nutrition Education and Behavior	5%	5%	0%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	5%	5%	0%	
723	Hazards to Human Health and Safety	5%	5%	0%	
724	Healthy Lifestyle	5%	5%	0%	
801	Individual and Family Resource Management	5%	5%	0%	
802	Human Development and Family Well-Being	5%	5%	0%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	5%	5%	0%	
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	5%	5%	0%	
805	Community Institutions, Health, and Social Services	5%	5%	0%	
806	Youth Development	5%	5%	0%	
901	Program and Project Design, and Statistics	5%	5%	0%	
902	Administration of Projects and Programs	5%	5%	0%	
903	Communication, Education, and Information Delivery	5%	5%	0%	
	Total	100%	100%	0%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890

Plan	40.0	8.0	0.0	0.0
Actual	43.9	3.0	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**
468305	201588	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
468305	201588	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
468305	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Diverse family structures and underserved groups, such as teenage parents, single parents, dual earner families, stepfamilies, grandparents raising grandchildren, families of military service personnel, aging adults, and caregiving families are increasing in Florida, along with problems such as poverty, social isolation, parental substance abuse and addiction, stress, child abuse, obesity, and domestic violence. Devoting more resources to prevention education could minimize many of these challenges.

Where we can likely make a difference:
Providing programming to families in the areas of personal and family well-being not only strengthens family functioning, but it improves outcomes for Florida citizens.

Although there are other agencies that may provide similar types of programs, in order to have significant impact, it is critical that this programming respond to local community needs, be based on research, be provided by trained family specialists, and be widely available to state residents at low or no cost. Only cooperative extension is able to fulfill all of these critical needs. Furthermore, in many rural counties cooperative extension may be the only available provider of these programs.

2. Brief description of the target audience

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

Homeowners
Prospective homeowners
Renters
Temporary/seasonal residents
Households with child(ren) age 6 years and younger
Seniors
Persons with disabilities
Housing professionals
Developers
Building/construction professionals
Housing sales professionals
Residential property management professionals
Non-government organizations
UF/IFAS faculty and staff
Extension county faculty
Community organizations

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	743354	1399246	0	0

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

Patent Applications Submitted

Year: 2010
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	157	0	157

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

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Change in Behavior Personal and Family Well-Being

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	115	113

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Conflict between work and family is something that over half of working parents face (Nomaguchi, 2009). Work-family conflict increases job turnover and job dissatisfaction as well as stress and other individual health and mental health problems; and reduces marital satisfaction and negatively impacts children?s behavior (Allen, Herst, Bruck, & Sutton, 2000). However, new research is also uncovering the importance of work-family ?enrichment?, whereby satisfaction in one area can improve the other (Eby, Maher, & Butts, 2010). The goal of this workshop is to help parent-employees to develop and practice solutions to work-family conflict that will help create a healthy work-life balance.

What has been done
University of Florida state and county faculty developed a one hour lesson on work-family balance, including slides, skills practice exercises, activities, and an evaluation tool. Four workshops were conducted in two counties. At the end of the workshop, participants were asked to complete a one page evaluation where they rated on a five-point scale the extent to which they agreed/disagreed with items measuring improvements in knowledge, awareness, skills, confidence, and plans to use skills; and that they would recommend the workshop to a friend.

Results
Of the 113 participants in one study responding to the evaluation, 81% said they better understood trends in work and family; 87% reported having stronger time management skills; 79% felt confident in using effective time management strategies; and 88% would recommend the workshop to a friend. Results of two early workshops showed that the communication skills section was weaker, and improvements were made. Impressively, of those responding, 87% said they would create a healthier work-life balance using the skills they learned. Studies conducted across the state show working parents who are better able to balance their work and family life are less prone to health concerns, absenteeism from work, and are more likely to remain employed. Health cost savings alone could be greatly impacted, as well as savings to employers, but savings related to keeping people off of unemployment would also have an important impact. Finally, children will benefit in a multitude of ways from the well-being of parents, as parents will be better able to serve in the parenting role.

4. Associated Knowledge Areas

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

Outcome #3

1. Outcome Measures

Change in Condition Personal and Family Well-Being

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	100	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Parents are referred by various agencies including Hillsborough Kids Inc., probation officers, Head Start,private attorneys, and Child Protective Investigations. Each month, up to twelve parents participate in six hours of parenting education to earn a certificate required by the court to

be reunited with or to maintain custody of children. Some of the participants are grandparents who find they are suddenly raising another generation of children due to a family crises, tragedy or neglect. Such is the case of one grandmother raising her toddler granddaughter after the child?s mother was murdered. Fathers wanting to be more involved with their children also attend so they can gain or improve their parenting skills or receive shared parental custody.

What has been done

In one county Extension officers basic parenting classes for these at-risk parents and other family members who feel the need for additional parenting skills. The classes are also open to the public, which encourages at‐risk parents to learn from other parents. Lessons include Effective Discipline, Family Communication, Stress Management, Balanced Parenting Styles, Enhancing Your Child?s Self‐esteem and What Kids Need to Succeed.

Results

Nearly 70% of the 100+ parents who enroll earn their certificate. The impact of keeping 70 children out of foster care at approximately $570 per child per month translates to over $478,000 saved yearly. For any business or community leader concerned about the quality of the future workforce and citizens ‐ or the quality of the community, promoting good parenting is good business.

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 #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	Quantitative Target	Actual
2010	100	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Families today bear greater personal responsibility for their own financial security. Changes in retirement benefits have made families responsible for funding their own retirement. The impact of the financial crisis and economic recession on Pinellas County households, particularly families with children, resulted in foreclosure case filings quadrupling between 2006 and 2009. A high unemployment rate and job loss along with poor decisions have contributed to the financial difficulties many people face. Financial management education programs enable residents to gain the knowledge and skills necessary to make wise financial choices and develop financial plans that lead to financial stability.

What has been done

To help consumers address financial issues, four in‐depth programs (6 hours in length) entitled Focus on Finances were offered to consumers. Topics included budgeting, establishing financial goals, credit, saving, and investing as well as planning for retirement. Extension staff and volunteers from the financial community provided instruction for the class series.

Results

Of the 38 participants, completing the post evaluation, all reported an increase in knowledge about one or more key financial topics such as budgeting, credit, debt management and saving for financial goals. Thirty seven identified at least one financial practice they intended to change. Examples of actions planned included tracking expenses, following a budget, setting a fixed amount aside for savings, and starting or adding to an emergency fund. One participant reported meeting with one of our volunteers, a Certified Public Accountant, to work out a budget to help get her and keep her out of debt.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #5

1. Outcome Measures

Change in Behavior Personal Financial Education

Not Reporting on this Outcome Measure

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, Nutrition, and Food Safety

Not Reporting on this Outcome Measure

Outcome #8

1. Outcome Measures

Change in Behavior Health, Nutrition, and Food Safety

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	50	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Situation: Type 2 diabetes mellitus is a condition that affects an estimated 23.6 million Americans, with the numbers still climbing (1). It is a disease marked by elevated blood glucose, which over time damages small and large blood vessels. The consequences of blood vessel damage may include heart disease, kidney disease, stroke, blindness, and nerve damage, which can result in the amputation of limbs. The annual cost of diabetes management and treatment of health complications in the U.S. is estimated to be over $170 billion. The effects of this disease on quality of life are inestimable.

Rationale: Self-care is crucial in managing diabetes since maintaining healthy blood glucose concentrations reduces the chances of developing heart, kidney, eye, and nerve problems. Extension is in a unique position to contribute to diabetes self-management education (DSME) using resources and expertise of faculty at land-grant universities, the Extension educational network, and existing or potential local contacts and collaborations with health professionals at the local level.

What has been done

With input from Extension faculty experienced in teaching nutrition education and cooking classes to persons with diabetes, our team focused on developing an in-depth DSME curriculum that county Extension faculty would be willing and able to use in their local communities and that could be supported by training. Our program, Take Charge of Your Diabetes (TCYD), is an in-depth Extension-based, collaborative DSME program targeted to adults with type 2 diabetes. The program is designed to improve blood glucose control and reduce long-term health risks of persons with diabetes by providing the information and motivation they need to adopt positive behavior changes.

Results

Outcome data for four counties:
Number of participants who enrolled in the program: 91
Number (%) of participants who completed the three-month follow-up evaluation: 71 (78%)
Number (%) who made at least one behavior change: 67 of 71 (94%)
Number (%) who use an accepted food system to plan meals 5-7 days per week: 44 of 58 (76%)
Number (%) who spaced carbohydrate intake evenly each day over past 5-7 days: 52 of 58 (90%)
Number (%) who participated in at least 30 min of physical activity over past 5-7 days: 40 of 58 (69%)
Number (%) who lowered their hemoglobin A1C: 37 of 58 (64%)

4. Associated Knowledge Areas

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

Outcome #9

1. Outcome Measures

Change in Condition Health, Nutrition, and Food Safety

Not Reporting on this Outcome Measure

Outcome #10

1. Outcome Measures

Change in Knowledge Sustainable Housing and Home Environment

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	50	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Extension offers GREEN Solutions for YOUR Life

What has been done
Extension staff coordinated
and invited local businesses to join in to put on the second annual GREEN Expo in Hudson. As part of this event, FCS agent with the help of 3 volunteers set up a 10? x 30? area in part of Veteran?s Memorial Park gym with 5 exhibits promoting reusable shopping bags; enviroshopping, less‐toxic cleaning, indoor water conservation and unusual edibles. A total of 100 surveys were completed by attendees to determine if they practiced shopping with the environment in mind (enviroshopping).

Results
On a scale of 1‐60 with the higher being the worst, the highest score was 50 just making the classification of contributing their full share of garbage to the environment! The lowest score was 21 = means that they are doing a great job! The average was 34.7 which does show that participants are doing a fair amount of recycling but could do better! Participants reported that they were most likely to donate old clothes
for future use and least likely to talk to store managers about stocking products with less packaging. A total of 361 attended despite the freezing temperatures.

4. Associated Knowledge Areas

KA Code	Knowledge Area

804 Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures

Outcome #11

1. Outcome Measures

Change in Behavior Sustainable Housing and Home Environment

Not Reporting on this Outcome Measure

Outcome #12

1. Outcome Measures

Change in Condition Sustainable Housing and Home Environment

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	50	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Mitigation is planning for something that might happen in the future. The value of mitigation education is something that will be measured in the future. Disasters have adverse consequences on the social and economic wellbeing of individuals and a community. Government and community can be overwhelmed by damage and conditions after a disaster. Implementing windstorm damage mitigation practices can potentially decrease vulnerability of structures and environments; and reduce loss of life and property, including disruption to individuals, households, businesses and community. Planning and preparedness increase the chance of surviving an event, affecting the social and economic recovery to the area; potentially resulting in fewer individual demands on resources, government or social response organizations.

What has been done

80 participants attended in this one county. * 80 homeowner workshop participants increased their knowledge of
windstorm damage mitigation for their home and personal safety as indicated by an end of course survey
* 80% increase on characteristics of hurricanes, development, elements and effects on buildings
* 78% increase on home mitigation and preparedness
* 83% increase on creating home mitigation, evacuation and family preparedness plans
* 91% increase on hurricane safety measures for the home and family
* 55 St. Lucie Housing participants (100%) learned how to install and care for hurricane shutters. Five of these families (9%) participated in the Residential Construction Mitigation Program and received wind mitigation retrofits and upgrades to their homes (total value $70,000.)

Results
Participants in this program are better prepared for future storms with the knowledge and skills necessary to make informed decisions about surviving wind events, including personal preparedness planning, retrofitting property to withstand hurricane winds and reducing potential building and property damage.
Due to wind, rain and windborne debris, a projectile can breech the building envelope, with multiple types of damage occurring from the breech (i.e.,water, structural, or roof failure). Mitigation actions taken by participants, i.e.sealing the building envelope by installing windstorm shutters, will potentially help avert damage to a home.
The home retrofits (shutters, roof upgrades, and doors) addressed by St. Lucie Housing, were approximately $16,000 per home to each of the five families that received grant funding assistance.

4. Associated Knowledge Areas

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

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

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

Brief Explanation

Florida is presently being affected by the economic issues plaguing the world. There are also public policy changes, governemtn regulations and reduced appropriations affecting Extension and the land-grant university as a whole. There are competing programmatic challenges and the general public tired from years of stress and uncertainity are also reacting negatively as they try to save their jobs and homes. Florida has also been told to expect another 3 to 6% reduction in legislative funds and as counties are also being cut back by the state it is expected that IFAS and especially Extension will be seriously impacted.

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

Evaluation Results

Florida Extension is providing educational programs in areas that are designed to promote indifvidual, family and community well-being and increased econmic security. Areas identified by the constitutents of most critical need relate to personal nad family well-being, personal financial education which has become even more critical during the recent economic situation, and health, nutrition and food safety. Also of critical importance is the educational programs such as SHIP that are provided by Extension to reduce foreclosures and increase sustainable housing and provide a healthy home environment.

Key Items of Evaluation

The Extension agent and Extension Advisory Committee recognized that the Monroe County School District does not offer a specific class in finance, nor do the sunshine state standards mandate that students learn

about money and finance. With new laws governing credit card companies going into effect, it will now be harder for young adults under the age of 21 to establish credit or obtain credit cards in their own name. In an unstable economy with unemployment rates at an alltime high, personal financial management education is more essential now than ever. In 2004, American teens spent $169 billion. The Jump$tart Coalition for Personal Financial Literacy survey found 12th graders' personal finance knowledge level at 52.3%. The lack of financial skills puts young people at risk of bad financial management habits.

County Extension Agent Alicia Betancourt worked with school administration to provide financial management lessons to Monroe County high schools. Trainings included "&tildetrain the trainer' with teachers and volunteers, in class instruction, and development of material to use as curriculum supplemental to the NEFE (National Endowment to Financial Education) material provided for free. As of February 2010, two high schools had taken advantage of the program, and a total of 51 sessions in 8 different classes were conducted with the agent and 16 volunteers. Lessons were presented on budgeting basics, the importance of savings, needs versus wants, and establishing and maintaining good credit.

Overall, 1,172 contact hours for youth (200 nonduplicative) in grades 11 through 12 were reached so far in 2010. Ninetysix percent of students surveyed agreed that the program information increased their knowledge of why it is important to have a budget and to save money starting early. Eightynine percent responded that they felt the program was beneficial to them. Financial management programming will continue through the spring 2011 semester. Financial Education is necessary because the effects of financial illiteracy reach into many aspects of communities. Poor financial management may result in lack of health services, foreclosure, and crime which affects the whole community.

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

Maintain, Enhance and Establish Sustainable Communities

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
608	Community Resource Planning and Development	10%	10%	0%	
610	Domestic Policy Analysis	10%	10%	0%	
723	Hazards to Human Health and Safety	10%	10%	0%	
724	Healthy Lifestyle	10%	10%	0%	
802	Human Development and Family Well-Being	10%	10%	0%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	10%	10%	0%	
805	Community Institutions, Health, and Social Services	10%	10%	0%	
806	Youth Development	10%	10%	0%	
902	Administration of Projects and Programs	10%	10%	0%	
903	Communication, Education, and Information Delivery	10%	10%	0%	
	Total	100%	100%	0%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	5.0	0.5	0.0	0.0
Actual	7.4	2.0	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**
78738	134392	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
78738	134392	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
78738	134392	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

The need for sustainable growth in Florida provides knowledge and solutions through educational programs in the following areas:
• Need for energy efficiency related to growth
*Identify and categorize existing Extension growth management programs and personnel
• Elected officials needing education
• Planning and zoning officials need education to make best decisions
• Find solution to training issues related to high turnover in government personnel
• how to weave climate change into growth management decisions
• No clear method of reaching target audiences with alternative strategies
• need to weigh economic growth needs with growth management needs for best integration
• Large scale urban growth that lacks BMPs in sustained growth.
• No standardization of managed growth/sustainability/climate language/definitions
• Citizen committees needing education
• Lack of understanding in redevelopment process, policy and procedures
• Need for training in team composition and problem solving process
• Need to understand technology related to sustainability and growth management (i.e. irrigation systems)
• Need to understand economic development (i.e. hidden costs in increased growth)
• Method to identify emerging trends and critical research within growth management
• Need for building science specialist and economic development specialist on the focus team
• Need for Extension County faculty trained as trainers
• Need for managed growth documents that that provide clear economic indicators related to growth management decisions
• Understanding of state and federal growth management regulations
• Need for leadership training with an emphasis on problem solving, change management and reducing conflict.
• Need to prepare future extension educators in growth management process, policy and procedure
• Need for education in implementing and writing new policy

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

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	101864	191743	0	0

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

Patent Applications Submitted

Year: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	25	0	25

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	50	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Planning, Sustainability and ?Green? issues are coming forward in Charlotte County and these issues are being addressed by various resources. As opportunities present themselves, Extension has offered resources to fulfill needs as they are identified. Many such opportunities have developed and Extension? goal is to identify and provide at least two (2) resources per year to assist as needed.

What has been done
Extension state specialists and agents expertise is being used to make policy and land use decisions by county government.

Results
As a result of a ?Medical District Potential Foresting Project Committee? on 08/24/2010, a UF/IFAS County Forester resource person was introduced to Growth Management and provided valuable input towards an urban forestry plan for the identified part of Port Charlotte.

4. Associated Knowledge Areas

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

Outcome #2

1. Outcome Measures

Change in Behavior Growth Management and Land Use Policy

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	25	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Finding ways to decrease energy costs is critical in a tropical state like Florida

What has been done
The planting of a green roof on the county ?One‐Stop? building (which houses the engineering and environmental staff) that is also the central location for builders and developers seeking building permits in Escambia County will allow the very people who develop our community to see alternative, environmentally responsible ways to build. The roof has only been installed for 3 months as of 12/10, but the lessons learned during design, installation, and throughout growing season can be used as an example for green roofs throughout the northern Gulf Coast, where this design technique is still extremely rare.

Results
The building and county will gain several benefits from the green roof; including energy savings, reduced stormwater runoff, increased wildlife habitat, and increased green space in an urban setting. Summertime data from a green roof in Central Florida indicate significantly lower peak roof surface temperatures and higher nighttime surface temperatures for the green roof.? The typical fee for a landscape designer on a project of this size and complexity would be 10‐12% of the roof construction cost, so the free service Extension provided as consultants for this design saved the county at least $56,000. The actual energy savings from the installation of the roof are yet to be determined.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #3

1. Outcome Measures

Change in Condition Growth Management and Land Use Policy

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

Change in Knowledge Civic Engagement, Leadership, and Community Development

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	25	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
New County Commissions are often not knowledable about community based issues and the role the land-grant university can play in decision making process.

What has been done
County Commissioner Training, offered in partnership with the Florida Association of Counties (FAC) attracted record numbers in 2010 on a percentage basis. Seventy‐five percent of commissioners elected in the 2008‐12 election cycle attended an educational program.

Results
Approximately 60 percent of all 2008 newly elected commissioners completed the 42 hour classroom voluntary certification (CCC) in 2010. Over 61 percent of

the commissioners who completed the CCC certification applied for the Advanced County Commissioner (ACC) certification resulting in maximum class capacity with a waiting list for those who could not be accommodated.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
902	Administration of Projects and Programs

Outcome #5

1. Outcome Measures

Change in Behavior Civic Engagement, Leadership, and Community Development

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	25	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Improved Food Distribution to address Hunger in Wakulla County
Coastal Community Resilience, Oil Spill

What has been done
As the result of communication channels of the Extension Agent(s) (Group Learning Events, Individual Consultations, Public Announcements, and Written Information)

Results
2,132 lbs of food was provided to local food banks through a network of Extension established / supported community resources including the Feeding Wakulla Task Force and Wakulla Springs Baptist Church Garden. Approximately ½ of this total, was locally grown fresh vegetables and fruits, the other half was from grassroots donations of canned and dry

goods collected at bins and events throughout the County.
Wakulla County Food Distribution for those in need expanded to serve an additional 4,045 households in 2010 as result of economic hardship as documented for the past three years by Second Harvest of the Big Bend. This was the result of increased cases of hardship and expanded capacity to provide additional food.

4. Associated Knowledge Areas

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

Outcome #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	Quantitative Target	Actual
2010	25	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Sumter County was a large commercial vegetable production county at one time; in fact the famous Sumter County Farmers Market was started in the early 1930?s to provide farmers a location to cooperatively sell their vegetables. After the housing boom, only a few large vegetable growers remain in the county, and citizens had very little access to locally produced foods. A Sumter Growers? Market was started in Bushnell in February 2008 as a trial to determine how many local growers would be able to produce for a market. Excellent partnerships were formed providing the location and a market manager for the market. The market closed in May 2008 and it was clear that there was much more demand

for fresh produce than producers willing to sell at a market.

What has been done

Through the combination of vegetable production classes, the AGRItunity conference and the Square One Farm Network series, this agent was successful in providing educational support for several new growers that were ready to try direct marketing. At the same time, pressure to provide access to local foods increased from residents of the highly populated retirement community called The Villages. Many of these residents moved from parts of the country where farmers markets and small farm stands are more prevalent. The City of Wildwood was approached by this agent with the idea of a weekly market that would be a community event and a source of local foods for the citizens of Sumter County. A market board was formed, rules and vision developed to maintain the local food focus of the market, and a market manager hired.

Results

The Wildwood Growers?
Market opened in October 2009 and currently averages 28 vendors and hundreds of shoppers each week and has been able to support local produce farmers, goat milk producers, artisans and community fund raising groups. In April 2010 the Wildwood City Council voted to continue supporting the market year‐round, absorbing the average cost of $46 per week. Early reports indicate that this has been a beneficial and successful community event, providing locally grown foods and business opportunity as well as a place to meet, gather and enjoy entertainment and learn more about local agriculture each Saturday. This agent continues to teach direct marketing, vegetable production and value‐added products classes so that new producers will be encouraged to grow for this market, providing the community with more locally produced food.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
724	Healthy Lifestyle
805	Community Institutions, Health, and Social Services
902	Administration of Projects and Programs

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	Quantitative Target	Actual
2010	100	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
As more individuals are moving away from the farm and rural areas, an increasing divide is occurring between those who produce agricultural products and those who consume the products (The Center for Public Issues Education in Agriculture and Natural Resources, 2010). This phenomenon has been labeled as the ?green divide,? a ?farm-to-plate knowledge gap,? and a lack of ?agricultural literacy? (PIE Center, 2010; Smart, 2009; National Research Council, 1988). The widening relationship between those who produce and consume agricultural products has begun to cause differing views between these two groups.

What has been done
1.To determine which messages produce favorable and unfavorable responses from consumers.
2.To understand what factors lead consumers to view messages as favorable or unfavorable.
3.To understand what messages consumers would prefer to hear regarding Florida agriculture.

Results
Focus groups were utilized to collect data. A series of four groups were conducted. A total of 36 participants participated in the focus groups with 7 to 10 participants participating in each group. Data was analyzed and compiled into a report and presentation. Findings were presented at industry events, executive board meetings and at five IFAS regional Advisory Council meetings. The results of this study and continuing research on agricultural messages have the potential to improve consumers? perceptions about agriculture and make strides toward bridging the gap between agricultural producers and consumers. The strong interest of clientele, including commitment to raise funding to conduct further research, shows impact in the form of a wider acceptance of conducting message testing research before developing communications about agriculture to general audiences.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development
802	Human Development and Family Well-Being
803	Sociological and Technological Change Affecting Individuals, Families, and

Communities

903 Communication, Education, and Information Delivery

Outcome #8

1. Outcome Measures

Change in Behavior Economic Development

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	100	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The Small Farms Academy created a unique opportunity for an intensive educational training program on Successfully Managing your Community Supported Agriculture Enterprise. By adopting the marketing strategy of selling product through a Community Supported Agriculture structure, participants can reduce monetary risk as the crop is presold. This will enable the farmer to become more financially stable thus allowing more time to improve production skills for greater efficiency and improved environmental quality on their farm. Additional impacts will be that local residents will have access to fresh, healthy food and food dollars will be kept in the community.

What has been done
This class was attended by nine farmers from throughout the state (Homestead to the Panhandle). Attendees found the class either by Extension newsletters,direct contact with agents or via the UF Small Farms website.

Results
A survey (with 7 respondents) was conducted six weeks after the program, with the following results : ‐71% respondents on track for starting CSA ‐50% had chosen a business structure ‐three participants had developed a pricing strategy ‐33% had conducted market research ‐17% had established customer service guidelines ‐two clients have plan to keep/organize finance & production records ‐1 client has formed or have

started a core group ‐1 attendee had developed plan to recruit shareholders ‐Two attendees had started and/or completed a business plan When asked about production strategies, respondents said they would: use season extension(4),grow crops that can be stored after harvest(2),use succession planting(6), grow their own transplants(4,add fruit crops to mix(2),cooperate with nearby growers to diversify share offering(2)& 1 offer value‐added items. ‐100% of clients have begun and/or are developing a crop planting schedules.

4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

Outcome #9

1. Outcome Measures

Change in Condition Economic Development

Not Reporting on this Outcome Measure

Outcome #10

1. Outcome Measures

Change in Knowledge Water and Energy Resource Efficiency

Not Reporting on this Outcome Measure

Outcome #11

1. Outcome Measures

Change in Behavior Water and Energy Resource Efficiency

Not Reporting on this Outcome Measure

Outcome #12

1. Outcome Measures

Change in Condition Water and Energy Resource Efficiency

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Florida is presently being affected by the economic issues plaguing the world. There are also public policy changes, governemtn regulations and reduced appropriations affecting Extension and the land-grant university as a whole. There are competing programmatic challenges and the general public tired from years of stress and uncertainity are also reacting negatively as they try to save their jobs and homes. Florida has also been told to expect another 3 to 6% reduction in legislative funds and as counties are also being cut back by the state it is expected that IFAS and especially Extension will be seriously impacted.

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

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 7

1. Name of the Planned Program

Promote Professional Development to Enhance Organizational Efficiency and Effectiveness

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
604	Marketing and Distribution Practices	20%	20%	0%	
610	Domestic Policy Analysis	10%	10%	0%	
802	Human Development and Family Well-Being	10%	10%	0%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	10%	10%	0%	
805	Community Institutions, Health, and Social Services	10%	10%	0%	
806	Youth Development	10%	10%	0%	
901	Program and Project Design, and Statistics	10%	10%	0%	
902	Administration of Projects and Programs	10%	10%	0%	
903	Communication, Education, and Information Delivery	10%	10%	0%	
	Total	100%	100%	0%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	20.0	0.0	0.0	0.0
Actual	0.0	0.0	0.0	0.0

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

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

We will not report on professional development to enhance organizational efficiency and effectiveness

2. Brief description of the target audience

All UF/IFAS extension professionals in 67 counties and State faculty with extension appointments.
UF/IFAS Faculty & Staff
County faculty and staff

Administration

State Faculty and staff

CEDs & DEDs

Advisory Committee Members

Volunteers

Local Industry Leaders

Local UF/IFAS Supporters, Alumni and Gator Club Members

Local Media Outlets

Local Government Officials

V(E). Planned Program (Outputs)

1. Standard output measures

2010	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: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	27	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 Program Development, Implementation and Evaluation

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	50	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
FAMU: There is a need for increase interest in Science, Math and Technology. FAMU is particualary interested in involving more student in the FAMU veterinary technology program.

What has been done
The AgTech Century 21 will provide service to middle and high school students (locally) to enhance their knowledge and background in science while creating interest in Animal science and related field. AgReach on the other hand, will provide service to farmers/ranchers to improve their knowledge in best practice relating to herd health and food safety. The overall goal is to contribute global food safety and production efficiency.

Results
Develop 2 new programs (AgTech Century 21, AgReach) which will be launched the spring summer. Both will provide service to different groups (youth & farmers/ranchers) but the goal is similar.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development
901	Program and Project Design, and Statistics
902	Administration of Projects and Programs
903	Communication, Education, and Information Delivery

Outcome #2

1. Outcome Measures

Change in Behavior Program Development, Implementation and Evaluation

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	50	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The loss of the District Instructional Media Agent will have a significant impact on this focus team to provide continuous year round support and training to the faculty. With the loss of this position this focus team will have to look more to specialists to help provide the training and informational trends so up to date IST?s can be planned and implanted for the county faculty. State law mandates that restricted use pesticide applicators be certified and licensed. There are approximately 12,000 applicators in Florida. To maintain their licenses, applicators are required to accumulate CEUs
during the license cycle. Traditional CEU training programs have been onsite classroom‐type meetings, primarily conducted through Extension.

What has been done
For efficiency reasons, innovative methods are being developed and evaluated for delivering CEU training. Objectives: 1) To use polycom for delivering a one‐day statewide CEU certification program. 2) To
determine if this delivery method is an effective approach for pesticide certification training.
An agenda was formulated and submitted to FDACS for program approval. Upon approval, the Pesticide Information Office solicited all county Extension offices and RECs for hosting a site. On 30 March, the event was held with speakers delivering presentations from the main campus and one satellite location. Topics included how herbicides work, plant anatomy, herbicide use patterns, new Florida weeds, integrating biocontrols, impact of NPDES, selecting herbicides, and minimizing non‐target effects. Audiences at host sites were then requested to complete an on‐line assessment.

Results
In total, 50 host sites throughout Florida participated and the program attracted 1,028 applicators. Selected results from 667 returned surveys (65%) showed that: 1) This was the first polycom event for most of the participants, and the majority would be willing to attend a similar event in the future. 2) Likert scale responses from the applicators were overwhelmingly positive for the format. They indicated knowledge of herbicide use and IPM increased, and the information presented would help their job performances. Conclusions: Polycom is an efficient means of delivering pesticide training and can be used effectively for educating certified applicators.
This has wide applications to be utilized state wide for a majority of educational outreach programs across all four areas of extension outreach.

4. Associated Knowledge Areas

KA Code	Knowledge Area
604	Marketing and Distribution Practices
802	Human Development and Family Well-Being
805	Community Institutions, Health, and Social Services
901	Program and Project Design, and Statistics
902	Administration of Projects and Programs
903	Communication, Education, and Information Delivery

Outcome #3

1. Outcome Measures

Change in Condition Program Development, Implementation and Evaluation

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

Change in Knowledge Faculty Orientation and Career Training

Not Reporting on this Outcome Measure

Outcome #5

1. Outcome Measures

Change in Behavior Faculty Orientation and Career Training

Not Reporting on this Outcome Measure

Outcome #6

1. **Outcome Measures**

Change in Condition Faculty Orientation and Career Training

Not Reporting on this Outcome Measure

Outcome #7

1. **Outcome Measures**

Change in Knowledge Effective Communication and Technology Use

Not Reporting on this Outcome Measure

Outcome #8

1. **Outcome Measures**

Change in Behavior Effective Communication and Technology Use

Not Reporting on this Outcome Measure

Outcome #9

1. **Outcome Measures**

Change in Condition Effective Communication and Technology Use

Not Reporting on this Outcome Measure

Outcome #10

1. **Outcome Measures**

Change in Knowledge Personal and Organizational Health

Not Reporting on this Outcome Measure

Outcome #11

1. Outcome Measures

Change in Knowledge Administration and Leadership

Not Reporting on this Outcome Measure

Outcome #12

1. Outcome Measures

Change in Behavior Administration and Leadership

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	25	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
FAMU: Development and implementation of holistic participatory capacity building/hands-on education and training sessions to enhance healthy, viable and sustainable farmscape; and Growers? Market Model.
Enhanced small farmer leadership and decision making: Provided information to farmers about a grant opportunity: During 2010 assisted three farmers in writing their first proposals. Three proposals were developed and submitted, emphasis included building youth leadership and organic method farm enterprise, enhancing farm and meat goat marketing, and enhancing oilseed production and bio-fuels.

What has been done
2010 Building Capacity Assessments/research and academic programs: Provided participatory learning opportunity for faculty/researchers to assist in identifying relevant local farming problems and establishing contact with farming populations: Implemented on-farm tour and farmer discussions that enhanced the capacity of researchers (with farmer participation) to identify problems, potential solutions, and collaborative research interests and sustainable agriculture linkages.

Results

Administered Bio-fuels grant which provides an opportunity to examine innovative bio-energy strategies as a model for development of sustainable small farm alternative energy and capacity building.

A paper addressing the potential global impact of this sustainable small farm project was accepted for presentation at the 2010 ISEIS Conference, Beijing, China.

4. Associated Knowledge Areas

KA Code	Knowledge Area
803	Sociological and Technological Change Affecting Individuals, Families, and Communities
901	Program and Project Design, and Statistics
902	Administration of Projects and Programs
903	Communication, Education, and Information Delivery

Outcome #13

1. Outcome Measures

Change in Condition Administration and Leadership

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Florida is presently being affected by the economic issues plaguing the world. There are also public policy changes, governemtn regulations and reduced appropriations affecting Extension and the land-grant university as a whole. There are competing programmatic challenges and the general public tired from years of stress and uncertainity are also reacting negatively as they try to save their jobs and homes. Florida has also been told to expect another 3 to 6% reduction in legislative funds and as counties are also being cut back by the state it is expected that IFAS and especially Extension will be seriously impacted.

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

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 8

1. Name of the Planned Program

Natural Resources and Environment--research

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%	10%	
102	Soil, Plant, Water, Nutrient Relationships	0%	0%	10%	
103	Management of Saline and Sodic Soils and Salinity	0%	0%	5%	
104	Protect Soil from Harmful Effects of Natural Elements	0%	0%	5%	
111	Conservation and Efficient Use of Water	0%	0%	5%	
112	Watershed Protection and Management	0%	0%	5%	
121	Management of Range Resources	0%	0%	5%	
122	Management and Control of Forest and Range Fires	0%	0%	5%	
123	Management and Sustainability of Forest Resources	0%	0%	5%	
124	Urban Forestry	0%	0%	5%	
125	Agroforestry	0%	0%	5%	
131	Alternative Uses of Land	0%	0%	5%	
132	Weather and Climate	0%	0%	5%	
133	Pollution Prevention and Mitigation	0%	0%	5%	
134	Outdoor Recreation	0%	0%	5%	
135	Aquatic and Terrestrial Wildlife	0%	0%	5%	
136	Conservation of Biological Diversity	0%	0%	5%	
141	Air Resource Protection and Management	0%	0%	5%	
	Total	0%	0%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	12.0	0.0

Actual	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

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

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

V(D). Planned Program (Activity)

1. Brief description of the Activity

Reports related to natural resouces and environment can be found under global security and hunger--research

2. Brief description of the target audience

V(E). Planned Program (Outputs)

1. Standard output measures

2010	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: 2010

Actual: 1

Patents listed

Digested-Residue Derived Biochar to Remove Lead from Water

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	160	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 methods for appraisal of soil resources
2	Improve soil, water and nutrient relationships
3	Improve the management of saline and sodic soils and salinity
4	Increase protection of soil from harmful effects of natural elements
5	Improve conservation and efficient use of water
6	Increase watershed protection and management
7	Improve methods for managing range resources
8	Improve mangement and control of forest and range fires
9	Improve management and sustainability of forest resource
10	Improve urban forestry
11	Improve Florida agroforestry
12	Identify alternative uses of land
13	Increase knowledge related to weather and climate
14	Improved pollution prevention techniques and mitigation
15	Improve methods of protecting aquatic and terrestrial wildlife environment
16	Improve conservation of biological diversity
17	Increase air resource protection and management

Outcome #1

1. Outcome Measures

Improve methods for appraisal of soil resources

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
101	Appraisal of Soil Resources

Outcome #2

1. Outcome Measures

Improve soil, water and nutrient relationships

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
102	Soil, Plant, Water, Nutrient Relationships

Outcome #3

1. Outcome Measures

Improve the management of saline and sodic soils and salinity

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual

2010	0	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
102	Soil, Plant, Water, Nutrient Relationships

Outcome #4

1. Outcome Measures

Increase protection of soil from harmful effects of natural elements

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
102	Soil, Plant, Water, Nutrient Relationships

Outcome #5

1. Outcome Measures

Improve conservation and efficient use of water

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
ENHANCING SUSTAINABILITY THROUGH INTEGRATED NUTRIENT MANAGEMENT IN CONVENTIONAL AND CERTIFIED ORGANIC VEGETABLE PRODUCTION SYSTEMS
Florida's population is expected to reach 25 million by 2025 (Keen, 2006) and during the past year, agricultural land prices have increased by 50-88% across the state (Reynolds et al., 2006). Of the 44,000 farms in Florida, approximately 85% are less than 180 acres, and 75% of those farms have earnings of less than 25,000 dollars a year (USDA NASS, 2003). All farms in Florida face increasing pressure to manage water resources more effectively. Nationally, agriculture accounts for 80% of the nation's consumptive water use. Florida's Department of Agriculture and Consumer Services initiated Best Management Practices (BMPs) (FLDACS, 2005) to reduce excessive nutrient loads of nitrogen (N) and phosphorus (P) into surface and groundwater (FDEP, 2004). N and P soil applications may be regulated in the future if sufficient progress to water quality is not made. The primary goal of the Sustainable and Organic Vegetable Production Program at the University of Florida is to minimize the negative environmental impacts of nutrient management in vegetable systems while ensuring long term security of local farming systems. Despite the ongoing application of organic soil amendments in cropping systems, there is an acute need for information and technologies to plan and monitor nutrient management programs using plant and animal fertility sources. No studies have been conducted to elucidate the rate and

amount of plant available nutrients as influenced by management, soil type and climate from cover crops in subtropical conditions.

What has been done

Objectives 1. Assess nutrient release patterns of common organic soil amendments (OSA) in controlled environments to increase our knowledge of factors governing rate of nutrient release and to facilitate field-level nutrient management. 2. Increase adoption of cover crops in Florida vegetable cropping systems by identifying species and varieties suitable to subtropical conditions and optimizing their management to improve nutrient cycling 3. Develop novel management strategies in vegetable cropping systems that optimize nutrient utilization from OSA while reducing risk to soil and water quality. 4. Form a multidisciplinary stakeholder advisory board whose mission will be to develop intellectual and financial infrastructure to reduce or eliminate barriers to agricultural sustainability through collaborative long term farming systems research and community outreach.

Results

Knowledge change was measured at several extension programs during the year. A Master Gardener's webinar was delivered to nearly 400 volunteer master gardeners across the state. Topics included organic farming practices and IPM. Of those attendees who submitted an evaluation (n=121) 94% reported an increase in knowledge. 90% of those same respondents indicated they would change their current gardening practices based on their new knowledge. Florida Small Farm and Alternative Enterprises Conference" was held at the Osceola Heritage Park, Kissimmee, Florida on August 1-2, 2009. In attendance were farmers, allied industry representatives, researchers, educators, institutional members, policy-makers, small farm commodity associations, foundations, and others interested in strengthening the small farm community in Florida. The conference included many activities that benefitted the small farms industry: Opening session featuring Innovative Farmer Spotlights, A general session featuring keynote speaker knowledgeable on sustainable agriculture, Dr. John Ikerd, Concurrent educational sessions and workshops to share results of groundbreaking research and provide educational support for producers to operate sustainable and profitable enterprises, An exhibition area to introduce new products and technologies to small producers, and the facilitation of farmer networking during sessions, and refreshment breaks and lunches featuring local products from Florida small farms. The Small Farms Conference evaluation (n=212) indicated an 89% increase in knowledge gain and the same percentage indicated the intent to change practices based on their new knowledge. The attendees noted that the networking opportunities were very valuable as well.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water

Outcome #6

1. Outcome Measures

Increase watershed protection and management

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
111	Conservation and Efficient Use of Water

Outcome #7

1. Outcome Measures

Improve methods for managing range resources

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
121	Management of Range Resources

Outcome #8

1. Outcome Measures

Improve mangement and control of forest and range fires

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual

2010	0	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
122	Management and Control of Forest and Range Fires

Outcome #9

1. Outcome Measures

Improve management and sustainability of forest resource

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
123	Management and Sustainability of Forest Resources

Outcome #10

1. Outcome Measures

Improve urban forestry

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
124	Urban Forestry

Outcome #11

1. Outcome Measures

Improve Florida agroforestry

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
125	Agroforestry

Outcome #12

1. Outcome Measures

Identify alternative uses of land

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
131	Alternative Uses of Land

Outcome #13

1. Outcome Measures

Increase knowledge related to weather and climate

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual

2010	0	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 #14

1. Outcome Measures

Improved pollution prevention techniques and mitigation

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
133	Pollution Prevention and Mitigation

Outcome #15

1. Outcome Measures

Improve methods of protecting aquatic and terrestrial wildlife environment

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
135	Aquatic and Terrestrial Wildlife

Outcome #16

1. Outcome Measures

Improve conservation of biological diversity

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
136	Conservation of Biological Diversity

Outcome #17

1. Outcome Measures

Increase air resource protection and management

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
141	Air Resource Protection and Management

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

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

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 9

1. Name of the Planned Program

Plants and Their Systems-research

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				
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				
211	Insects, Mites, and Other Arthropods Affecting Plants				
212	Pathogens and Nematodes Affecting Plants				
213	Weeds Affecting Plants				
214	Vertebrates, Mollusks, and Other Pests Affecting Plants				
215	Biological Control of Pests Affecting Plants				
216	Integrated Pest Management Systems				
	Total				

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	38.0	0.0
Actual	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

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

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

V(D). Planned Program (Activity)

1. Brief description of the Activity

Reports related to plants and their systems can be found under global security and hunger--research

2. Brief description of the target audience

V(E). Planned Program (Outputs)

1. Standard output measures

2010	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: 2010

Actual: {No Data

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	210	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	Development and use of bioherbicides can help to diversify weed control options, supplement chemical herbicides, and provide an alternative to methyl bromide
2	Discover, develop, evaluate and disseminate knowledge and information necessary to support the agronomic-related industries of the State and nation,
3	Promote and enhance the production and utilization of agronomic commodities and the management of pest plant species for the benefit of society.
4	Developing and disseminating environmentally and economically sound technolo-gies related to water management and plant nutrition that will increase production and utilization efficiencies
5	Develop horticultural characteristics, disease and host/plant resistance through classical genetics and molecular techniques, allowing the creation of marketable products for consumers
6	Research and develop crop production and physiology information and will set an example for the industry in environmen-tally safe practices.
7	Research and solve immediate technical problems facing the fruit and vegetable industries including the development of new information, materials and techniques to increase the efficiency of production, harvest and post-harvest handling
8	Develop new food plant cultivars that have improved quality characteristics.

Outcome #1

1. Outcome Measures

Development and use of bioherbicides can help to diversify weed control options, supplement chemical herbicides, and provide an alternative to methyl bromide

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants

Outcome #2

1. Outcome Measures

Discover, develop, evaluate and disseminate knowledge and information necessary to support the agronomic-related industries of the State and nation,

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
205	Plant Management Systems

Outcome #3

1. Outcome Measures

Promote and enhance the production and utilization of agronomic commodities and the management of pest plant species for the benefit of society.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual

2010	0	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
205	Plant Management Systems
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems

Outcome #4

1. Outcome Measures

Developing and disseminating environmentally and economically sound technolo-gies related to water management and plant nutrition that will increase production and utilization efficiencies

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
101	Appraisal of Soil Resources
205	Plant Management Systems

Outcome #5

1. Outcome Measures

Develop horticultural characteristics, disease and host/plant resistance through classical genetics and molecular techniques, allowing the creation of marketable products for consumers

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
205	Plant Management Systems

Outcome #6

1. Outcome Measures

Research and develop crop production and physiology information and will set an example for the industry in environmen-tally safe practices.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
101	Appraisal of Soil Resources
201	Plant Genome, Genetics, and Genetic Mechanisms
202	Plant Genetic Resources
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants

206 Basic Plant Biology

Outcome #7

1. Outcome Measures

Research and solve immediate technical problems facing the fruit and vegetable industries including the development of new information, materials and techniques to increase the efficiency of production, harvest and post-harvest handling

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems

Outcome #8

1. Outcome Measures

Develop new food plant cultivars that have improved quality characteristics.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
206	Basic Plant Biology

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

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

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 10

1. Name of the Planned Program

Animals and their Systems--research

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
301	Reproductive Performance of Animals				
302	Nutrient Utilization in Animals				
303	Genetic Improvement of Animals				
304	Animal Genome				
305	Animal Physiological Processes				
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				
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals				
315	Animal Welfare/Well-Being and Protection				
	Total				

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	2.0	0.0
Actual	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

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

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

V(D). Planned Program (Activity)

1. Brief description of the Activity

Reports related to animals and their systems can be found under global security and hunger--research

2. Brief description of the target audience

V(E). Planned Program (Outputs)

1. Standard output measures

2010	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: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	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 reproductive performance of animals
2	Improve nutrient utilization in animals
3	Improve genetics in animals
4	Increase knowledge in area of animal genome
5	Improve animal physiological processes
6	Reduce environmental stress in animals
7	Improve animal management systems
8	Improve animal products (before harvest)
9	Increase knowledge and decrease incidence of animal diseases
10	Reduce instances of external parasites and pests of animals
11	Reduce internal parasites in animals
12	Identify and reduce toxic chemicals, poisonous plants, naturally occurring toxins, and other hazards affecting animals
13	Increase animal welfare,/well-being and protection through improved BMPs

Outcome #1

1. Outcome Measures

Improve reproductive performance of animals

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
301	Reproductive Performance of Animals

Outcome #2

1. Outcome Measures

Improve nutrient utilization in animals

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
302	Nutrient Utilization in Animals

Outcome #3

1. Outcome Measures

Improve genetics in animals

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual

2010	0	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
303	Genetic Improvement of Animals

Outcome #4

1. Outcome Measures

Increase knowledge in area of animal genome

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
304	Animal Genome

Outcome #5

1. Outcome Measures

Improve animal physiological processes

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
305	Animal Physiological Processes

Outcome #6

1. Outcome Measures

Reduce environmental stress in animals

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
306	Environmental Stress in Animals

Outcome #7

1. Outcome Measures

Improve animal management systems

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
307	Animal Management Systems

Outcome #8

1. Outcome Measures

Improve animal products (before harvest)

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual

2010	0	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
308	Improved Animal Products (Before Harvest)

Outcome #9

1. Outcome Measures

Increase knowledge and decrease incidence of animal diseases

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
311	Animal Diseases

Outcome #10

1. Outcome Measures

Reduce instances of external parasites and pests of animals

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
312	External Parasites and Pests of Animals

Outcome #11

1. Outcome Measures

Reduce internal parasites in animals

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
313	Internal Parasites in Animals

Outcome #12

1. Outcome Measures

Identify and reduce toxic chemicals, poisonous plants, naturally occurring toxins, and other hazards affecting animals

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals

Outcome #13

1. Outcome Measures

Increase animal welfare,/well-being and protection through improved BMPs

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual

2010	0	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
305	Animal Physiological Processes
307	Animal Management Systems
315	Animal Welfare/Well-Being and Protection

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

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

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 11

1. Name of the Planned Program

Food and Non-Food Products: Development, Processing, Quality, and Delivery--research

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
501	New and Improved Food Processing Technologies				
502	New and Improved Food Products				
503	Quality Maintenance in Storing and Marketing Food Products				
504	Home and Commercial Food Service				
511	New and Improved Non-Food Products and Processes				
512	Quality Maintenance in Storing and Marketing Non-Food Products				
	Total				

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	3.0	0.0
Actual	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

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

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

V(D). Planned Program (Activity)

1. Brief description of the Activity

Reports related to food and non-food products can be found under global security and hunger (research) or food security --research

2. Brief description of the target audience

V(E). Planned Program (Outputs)

1. Standard output measures

2010	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: 2010

Actual: {No Data

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	30	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 and improved food processing techniques
2	Develop new and improved food products
3	Improve quality maintance in storing and marketing food products
4	Develop new and improved non-food products and processes
5	Develop Quality maintenance methods in storing and marketing non-food products

Outcome #1

1. Outcome Measures

Develop new and improved food processing techniques

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
501	New and Improved Food Processing Technologies

Outcome #2

1. Outcome Measures

Develop new and improved food products

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
502	New and Improved Food Products

Outcome #3

1. Outcome Measures

Improve quality maintance in storing and marketing food products

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual

2010	0	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
503	Quality Maintenance in Storing and Marketing Food Products

Outcome #4

1. Outcome Measures

Develop new and improved non-food products and processes

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
511	New and Improved Non-Food Products and Processes

Outcome #5

1. Outcome Measures

Develop Quality maintenance methods in storing and marketing non-food products

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
512	Quality Maintenance in Storing and Marketing Non-Food Products

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

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

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 12

1. Name of the Planned Program

Economics, Markets and Policy--research

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
601	Economics of Agricultural Production and Farm Management				
602	Business Management, Finance, and Taxation				
603	Market Economics				
604	Marketing and Distribution Practices				
605	Natural Resource and Environmental Economics				
606	International Trade and Development				
607	Consumer Economics				
608	Community Resource Planning and Development				
609	Economic Theory and Methods				
610	Domestic Policy Analysis				
611	Foreign Policy and Programs				
	Total				

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	1.0	0.0
Actual	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

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

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

V(D). Planned Program (Activity)

1. Brief description of the Activity

Reports related to economics, mmarkets and policy can be found under global security and hunger--research

2. Brief description of the target audience

V(E). Planned Program (Outputs)

1. Standard output measures

2010	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: 2010

Actual: {No Data

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total

Actual	0	60	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	Provide economic analysis of issues confronting Florida stakeholders including assessment of the competitive position of Florida crops in the international market place.
2	Research factors that influence consumers' subjective perceptions about food consumption that will allow agribusiness, ag producers, and policy makers to respond more effectivley to consumer and producer concerns
3	Understand and develop policy necessary for improved development of international trade

Outcome #1

1. Outcome Measures

Provide economic analysis of issues confronting Florida stakeholders including assessment of the competitive position of Florida crops in the international market place.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
601	Economics of Agricultural Production and Farm Management
603	Market Economics
604	Marketing and Distribution Practices
605	Natural Resource and Environmental Economics
606	International Trade and Development
607	Consumer Economics

Outcome #2

1. Outcome Measures

Research factors that influence consumers' subjective perceptions about food consumption that will allow agribusiness, ag producers, and policy makers to respond more effectivley to consumer and producer concerns

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
601	Economics of Agricultural Production and Farm Management
603	Market Economics
604	Marketing and Distribution Practices
607	Consumer Economics
609	Economic Theory and Methods
610	Domestic Policy Analysis

Outcome #3

1. Outcome Measures

Understand and develop policy necessary for improved development of international trade

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
606	International Trade and Development
609	Economic Theory and Methods
610	Domestic Policy Analysis

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

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

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 13

1. Name of the Planned Program

Human Nutrition and Human Health--research

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				
702	Requirements and Function of Nutrients and Other Food Components				
703	Nutrition Education and Behavior				
704	Nutrition and Hunger in the Population				
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				
721	Insects and Other Pests Affecting Humans				
722	Zoonotic Diseases and Parasites Affecting Humans				
723	Hazards to Human Health and Safety				
724	Healthy Lifestyle				
	Total				

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	3.0	0.0
Actual	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

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

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

V(D). Planned Program (Activity)

1. Brief description of the Activity

Reports related tohuman nutrition can be found under food safety, childhood obesity or family, youth and communities--research

2. Brief description of the target audience

n/A

V(E). Planned Program (Outputs)

1. Standard output measures

2010	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: 2010

Actual: 4

Patents listed

Lactobacillus Supplement to Prevent Diabetes Type 1
Lactobacillus Supplement to Prevent Diabetes Type 1
Characterization of the Autoimmune Microbiome for Type 1 Diabetes

Lactobacillus Supplement to Prevent Diabetes Type 1

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	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	Research in the area of human nutrition, food safety, and human health and well-being addresses problems and opportunities important to the food industry and quality of life in Florida and throughout the world

Outcome #1

1. Outcome Measures

Research in the area of human nutrition, food safety, and human health and well-being addresses problems and opportunities important to the food industry and quality of life in Florida and throughout the world

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
702	Requirements and Function of Nutrients and Other Food Components
703	Nutrition Education and Behavior
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
723	Hazards to Human Health and Safety

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

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

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 14

1. Name of the Planned Program

Families, Youth. and Communities--research

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
801	Individual and Family Resource Management	0%	0%	20%	
802	Human Development and Family Well-Being	0%	0%	20%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	0%	0%	10%	
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	0%	0%	20%	
805	Community Institutions, Health, and Social Services	0%	0%	20%	
806	Youth Development	0%	0%	10%	
	Total	0%	0%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	1.0	0.0
Actual	0.0	0.0	2.1	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	35117	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	35117	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	35117	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Faced with the variety of economic, social, and environmental issues present in Florida, the ned to provide better infomration to address community issues is vital to the long-term viability and sustainability of our communities and cultures. The cornerstone of effective community development is the active involvement of local citizens in planning, decision-making, and efforts to enhance local well-being. The development of volunteers, leadership, and social change mechanisms is best facilitated by community action but research can improve leadership, the quality of training, finding the best volunteers and other needs for healthy communities. Community action serves as a catalyst for transforming routine interaction into purposive efforts that contribute to the emergence of community. This adaptive capacity is reflected in a better understanding of the types of people needed to manage, utilize, and enhance those resources available to them in addressing local issues. These issues may include improving the economic situation or developing ways to improve retention of employees for businesses.

Along with the community itself is the need to better understand the family unit. The areas that need research are too numerous to count but may include anything from dealing with stressful situations and reducing violence in youth, to understanding budgets and providing better understanding the needs of homeownership.

2. Brief description of the target audience

Families
Family support groups
Schools
community leaders
Businesses (public and private)
government agencies

V(E). Planned Program (Outputs)

1. Standard output measures

2010	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: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	30	30

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	Identify characteristics of curricula and programs that might facilitate or hinder educational outcomes in grades k-12
3	Investigate connections between outdoor recreation, human health and well being
4	Set research priorities for multi-state and national work on emerging issues relevant to the economic well-being 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

Identify characteristics of curricula and programs that might facilitate or hinder educational outcomes in grades k-12

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

It is widely believed that the prosperity of the nation?s people and economy rests, in large part, on the availability of human capital. Since most human capital is generated through formal education, the quality of public K-20 education is of paramount importance in preparing America?s youth to be productive professionals and engaged citizens. Furthermore, the need for skilled professionals in science and math-oriented jobs is increasing in the technology-driven global economy, and policymakers are concerned that the supply of skilled workers will fall short of demand. The quality of public education also is critical to maintaining agricultural and natural resource-based industries in increasingly competitive regional and global markets. An educated and skilled pool of workers is the key feature supporting America?s effort to progress in the technologically sophisticated global environment. Though public schools are the primary factor in math and science education, there also is evidence that families and communities share responsibility for promoting students? academic success. Considerable effort has been directed at understanding educational outcomes and assessing the efficacy of interventions inside and outside the school, but significant gaps remain. These include limited understanding of how attributes of curricula and programs affect educational outcomes and how family, school, and community factors moderate or mediate these affects. This gap is especially apparent when the scope and rigor of the research is considered. For example, few large-scale, systematic studies

have examined how well Career and Technical Education (CTE) students? achievement compares with those enrolled in other academic curricula and whether the former are prepared to compete for science and math-oriented positions in college and industry. In a similar manner, more attention has been devoted to reading achievement than to math and science at the elementary level. In addition, despite the well-documented effects of community resources, there are few studies that have examined the mechanisms of how rural location moderates the relationship between educational programs and student outcomes. This research project examines characteristics of curricula and programs that might facilitate or hinder educational outcomes during the K-12 years. These relationships are assessed in the context of social structures and processes that occur within families, schools, and communities. Obtaining a better understanding of the effects of curricula, family, school, and community factors on educational outcomes can help school officials, parents, and local leaders identify policies and programs that are likely to be effective in enhancing educational achievement.

What has been done

This research project examines characteristics of curricula and programs that might facilitate or hinder educational outcomes during the K-12 years. These relationships are assessed in the context of social structures and processes that occur within families, schools, and communities. Obtaining a better understanding of the effects of curricula, family, school, and community factors on educational outcomes can help school officials, parents, and local leaders identify policies and programs that are likely to be effective in enhancing educational achievement. Key objectives for the research project are twofold: 1) to identify educational curricula and processes that are effective in increasing student achievement, high school completion, college attendance and employment opportunities, and 2) to develop conceptual and statistical models, including multi-level models using HLM, to identify attributes of families and communities that mediate or moderate the effects of curricula and processes on educational outcomes. The results from this project will be disseminated using a multi-faceted approach. The researchers plan to publish manuscripts in appropriate refereed journals such as Sociology of Education, Rural Sociology, Southern Rural Sociology, and Journal of Research in Rural Education. Summaries of the research findings will be prepared for distribution to educational agencies and/or Extension organizations in the form of trade journal articles (e.g., School Business Affairs, Phi Delta Kappan), policy briefs (e.g., Rural Realities) and fact sheets. Finally, the researchers will work with UF/IFAS communication services to develop press releases for the mass media. The findings from this research can have an important impact on educational policy and practice.

Results

Research continued on the project involving a partnership with the Florida Department of Education (FDOE). FDOE provided data from its data warehouse to allow the PIs to conduct studies on Career & Technical Education (CTE) students (n = ~75,000) and a sample of non-CTE students (n = ~75,000) in high schools. After obtaining the data, work was conducted to explore the data, create composite variables, and merge data elements into multi-level (i.e., community, school, student) analytic files. A study was completed, which compared student achievement on Florida's FCAT science test across CTE participants in the agriculture, health science, and technology education (STEM) occupational clusters. Later, a fourth cluster, Education and Training was added to the analysis. The data analysis revealed that students in agriculture programs scored slightly lower on the FCAT science test than those in health programs and somewhat lower than those in STEM programs. On the other hand, concentrators in agriculture programs scored on par with those in health programs and slightly lower than those in STEM programs after controlling for student and school factors. This study was presented at the conference of the Southern Agricultural Education Research Conference and published in the proceedings. A second study which explores the science achievement of CTE and Non-CTE

students across Florida's rural and urban areas also was conducted. The purpose was to examine the effects of community location on 11th grade standardized science test scores, as well as mediating compositional and structural attributes of schools and communities for CTE and non-CTE students in Florida. Using hierarchical linear modeling, we find that students living in the most rural locations (non-metropolitan counties with a town of less than 20,000 residents) scored on par with peers residing in more populous metropolitan and nonmetropolitan counties. In addition, CTE students who complete an occupational concentration showed higher achievement than non-concentrators and non-CTE students. The study, "Rural location effects on high school achievement," was presented at the conference of the Rural Sociological Society.
PARTICIPANTS: Nothing significant to report during this reporting period.

4. Associated Knowledge Areas

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

Outcome #3

1. Outcome Measures

Investigate connections between outdoor recreation, human health and well being

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Managers, policy-makers, and communities need science-based strategies to address societal trends that affect outdoor recreation. This multi-state project proposal puts forth a comprehensive research agenda focused on balancing natural resource recreation management, human well-being, and community resilience. By using state-of-the-art social science research methods integrated with ecological and spatial data, researchers will be able to discover new concepts and improve existing theory that improves the efficiency and effectiveness of natural resource recreation management. The specific outputs of this multi-state project is to enhance the capacity of outdoor recreation researchers by promoting collaboration and striving to provide science-based knowledge that leads to sustainable outdoor environments, recreation experiences, and healthier communities.

What has been done

To attain the objectives of this project, a wide variety of research methods are available. Due to the interdisciplinary nature of ecotourism and wildland recreation, it is expected that social and bio-physical research will be needed. To ensure successful collaboration with resource decision-makers, resource planners and managers will assist in all phases of the research. Also, researchers in associated disciplines (e.g., economics, community sciences, ecology, wildlife management) will be recruited to participate and collaborate in appropriate studies. Specific scientific methods to be used include on-site visitor questionnaires, which will elicit recreation users' attitudes, values, perceptions, and beliefs. Also, traditional quantitative questionnaires will be used to understand community residents, stakeholders, and decision-makers attitudes, values, and beliefs towards recreation. Descriptive and multi-variate statistics will be used to analyze data to test hypotheses. Qualitative methods will also be used to elicit new theories and concepts related to the study objectives. Integrating recreation into community management and planning to ensure sustainable benefits for economies, residents, and the environment is still relatively unknown and qualitative research is appropriate to answer these new questions. Methods such as focus group meetings, individual interviews, nominal group meetings, the delphi technique, among others will be used.

Results

This multi-state project is in its infancy and the multi-state collaborators have just begun to meet. Research related to recreation management, human well-being, and community resileience continues in Florida. Mostly this work relates to research conducted on the Florida National Scenic Trail. Also, research has recently begun on recreation use of Florida Fish and Wildlife Conservation Commission lands. The multi-state project is still in the early stages of development, and is in process of developing outputs. This will be reported as they are developed.

4. Associated Knowledge Areas

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

Outcome #4

1. Outcome Measures

Set research priorities for multi-state and national work on emerging issues relevant to the economic well-being of families.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual

2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Several emerging family economics issues exist. Communities and families today face critical economic issues in increasingly complex and diverse environments. Rural and urban families struggle to maintain economic stability in a changing economy. The population is aging and becoming more racially and ethnically diverse. Financial concerns exist across the lifespan. Young adults face escalating costs of higher education, increasing indebtedness, and a rising number of bankruptcies. Midlife adults and elders are concerned with retirement income adequacy, rising health care costs, and management of elder care. A major purpose of this committee is facilitating collaboration among family economics researchers nationally and internationally. The committee provides a forum to examine research methodology and family economic issues in depth from a multidisciplinary perspective. The committee fosters development of research related to the economic well-being of individuals and families that is of interest to multiple institutions around the nation. For example, this committee recently served as a catalyst to launch two major regional research projects, NC 1011: Rural Low-Income Families: Tracking their Well-being and Function in an Era of Welfare Reform, and NC 1013: The Economic and Psychological Determinants of Household Savings.

What has been done

a. Set research priorities for multi-state and national work on emerging issues relevant to the economic well-being of families. b. Identify strategies to increase the rigor of the research methodology and empirical techniques used in the field of family economics. c. Provide an opportunity for scholars to build partnerships and develop grantsmanship skills to secure research funding from competitive grant programs. d. Develop methods for measuring and communicating impacts of family economic research through policy and practice changes. e. Assist in the dissemination of family economic and related research, via traditional Extension and new outreach opportunities, thereby educating professionals on issues relevant to improving family economic well-being and the sustainability of family and community systems.

Results

The committee's anticipated activities for 2006-2007 include: 1. Creating a 1-page flyer identifying (a) the key research focus areas, (b) who we are, and (c) who to contact for more information. List serves and personal websites would be used to disseminate the flyer. The objective is to communicate and disseminate research priorities to family economists and possibly expand the network. 2. Placing the three research focus areas on each committee member s personal website. 3. Writing research briefs. During 2006-2007, all committee members will submit a research brief written by themselves and/or their colleagues. The briefs will be distributed to the family and consumer economics network and other stakeholders including: other colleagues, Agricultural Experiment Station Directors, educators (extension and resident instructors), funders/partners, government, and private institutions. 4. Organizing a session related to using large data sets at the 2007 NCCC052 meeting to expand researchers opportunities for conducting more rigorous research in the three focus areas. 5. Present research at relevant and appropriate conferences. Look for opportunities to host special research sessions in the three focus areas. 6. Set guidelines/benchmarks for measuring the aggregate impact and rigor of research being conducted at committee members institutions (i.e., quality of publications, presentations, grants).

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

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

Brief Explanation

The weak economy and reduction of funding in the state continues to impact research. Also, weather conditions common to the tropics including hurricanes, weather extremes from drought to flooding have impacted Florida over the past year.

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

Evaluation Results

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 15

1. Name of the Planned Program

Agricultural, Natural Resource, and Biological Engineering--research

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
401	Structures, Facilities, and General Purpose Farm Supplies				
402	Engineering Systems and Equipment				
403	Waste Disposal, Recycling, and Reuse				
404	Instrumentation and Control Systems				
405	Drainage and Irrigation Systems and Facilities				
	Total				

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	1.0	0.0
Actual	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

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

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

V(D). Planned Program (Activity)

1. Brief description of the Activity

Reports related to natural resouces and environment can be found under global security and hunger--research

2. Brief description of the target audience

V(E). Planned Program (Outputs)

1. Standard output measures

2010	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: 2010

Actual: {No Data

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	5	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	To Improve design, construction and cost of facilities for animals, agricultural products, ag inputs, equipment and other materials.
2	To improve methods related to waste disposal, recycling and reuse
3	To increase the efficiency and decrease labor requirement in ag and forestry production
4	To develop effective instrumentation and information that ate important aspects of pre- and post-production agriculture.
5	To develop effective water management systems that include surface, subsurace drainage and all irrigation systems.

Outcome #1

1. Outcome Measures

To Improve design, construction and cost of facilities for animals, agricultural products, ag inputs, equipment and other materials.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
401	Structures, Facilities, and General Purpose Farm Supplies

Outcome #2

1. Outcome Measures

To improve methods related to waste disposal, recycling and reuse

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
403	Waste Disposal, Recycling, and Reuse
404	Instrumentation and Control Systems
405	Drainage and Irrigation Systems and Facilities

Outcome #3

1. Outcome Measures

To increase the efficiency and decrease labor requirement in ag and forestry production

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
401	Structures, Facilities, and General Purpose Farm Supplies
402	Engineering Systems and Equipment
404	Instrumentation and Control Systems
405	Drainage and Irrigation Systems and Facilities

Outcome #4

1. Outcome Measures

To develop effective instrumentation and information that ate important aspects of pre- and post-production agriculture.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
401	Structures, Facilities, and General Purpose Farm Supplies
402	Engineering Systems and Equipment
404	Instrumentation and Control Systems
405	Drainage and Irrigation Systems and Facilities

Outcome #5

1. Outcome Measures

To develop effective water management systems that include surface, subsurace drainage and all irrigation systems.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	0	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
401	Structures, Facilities, and General Purpose Farm Supplies
402	Engineering Systems and Equipment
403	Waste Disposal, Recycling, and Reuse
404	Instrumentation and Control Systems
405	Drainage and Irrigation Systems and Facilities

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

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

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 16

1. Name of the Planned Program

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

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
901	Program and Project Design, and Statistics	0%	0%	35%	
902	Administration of Projects and Programs	0%	0%	35%	
903	Communication, Education, and Information Delivery	0%	0%	30%	
	Total	0%	0%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	0.3	0.0
Actual	0.0	0.0	0.6	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	62380	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	62380	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

Program planning, implementation, and evaluation form the backbone of any business or organization including the landgrant university. Program planning is the means by which quality is assured; evaluation

is the means by which effectiveness is demonstrated. Program planning includes all aspects of business from leadership to evaluation. It is imperative that organizations stay on the cutting edge to be competitive especially in the agriculture realm. Research in the these areas including the best ways to provide education are crucial for agricuture to stay on the cutting edge.

2. Brief description of the target audience

County and state faculty
business and organizations

V(E). Planned Program (Outputs)

1. Standard output measures

2010	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: 2010
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	1	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.
4	Identify elements that contribute to the net benefits of volunteer programs in Florida

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

Outcome #4

1. Outcome Measures

Identify elements that contribute to the net benefits of volunteer programs in Florida

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Volunteers are an essential component of positive youth development in Florida 4-H. They provide nonformal educational experiences to youth who otherwise might not be served (Steele, 1994). Volunteers contribute to learning environments that promote positive youth development by supporting youth in the achievement of their goals; providing learning opportunities that interest youth in a community setting; and creating safe and secure environments for youth. Research has consistently shown that increased developmental assets in youth leads to positive outcomes (Leffert et al.; Connell, Spencer, & Aber, 1994; Hawkins, Catalano, & Miller, 1992). Developmental assets include commitment to learning, positive values, social competencies, and positive identity. Youth with higher levels of developmental assets were considerably more likely than other youth to report being successful at school, overcoming adversity, and maintaining physical health, and reducing risky behavior (Scales, Benson, Leffert, & Blyth, 2000). In Florida 4-H, volunteers are essential in providing these experiences for youth. Expanded volunteer involvement allows Extension and Florida 4-H to expand the scope and reach of opportunities and experiences for youth; increase the number of youth involved in positive youth development experiences; increase the quality of services provided by 4-H; increase the public support from the community; and increase the impact of youth development efforts. A key responsibility for Florida Extension 4-H agents has been to engage volunteers in a variety of roles and duties, and to accept ownership for the county youth development program. Nationwide and in Florida, the number of adults engaged in 4-H Youth Development has decreased (Stedman & Rudd, 2006). Lack of volunteer support in Florida 4-H has profound consequences for youth and Extension faculty in Florida. Increased demand for youth development programs together with decreased supply of volunteers has shifted the workload to paid professionals, strained human and financial resources of the county 4-H office, reduced the number of youth served, and decreased program quality. To maximize the effectiveness of volunteer development efforts and expand volunteer involvement requires a systematic approach. This approach includes: establishing supportive environments for volunteers to learn and grow; creating an organizational structure that identifies roles for volunteers; utilizing a process that leads volunteers and manages organizational structures; and maintains a financial resource base to effectively operate. Building long-term committed volunteers has been contingent upon matching the interests, skills, and abilities of a potential volunteer with a volunteer role of the same requirements (Ellis, 2003). Key to attracting new and retaining existing volunteer is the understanding who currently volunteers and why (Smith & Finley, 2004). Results of this research will help develop a consistent systematic process of recruiting, training, utilizing, and retaining volunteers that will increase the impact on youth in Florida.

What has been done

The goal of this research project is understand the elements that contribute to the net benefits of volunteer development programs in Florida 4-H. Specifically it is the objective of the project to: (1) assess county 4-H programs to determine the net benefit of volunteer development efforts; (2)identify the volunteer management, administration and leadership skills and competencies of Florida 4-H agents; (3) identify characteristics and volunteer motivation factors of adults and youth that volunteer in Florida 4-H; and (4) identify skills and competencies of adult and youth volunteers to effectively deliver 4-H Youth Development programs and activities. It is expected that by understanding the relationships between these elements: sytems can be developed to manage and lead 4-H volunteers; education can be developed and delivered to improve the competencies of county faculty that work with 4-H volunteers; education can be developed and delivered to improve the competencies and satisfaction of volunteers that work with youth; the number of learning opportunties for youth will increase; and the net benefits of volunteer developement programs will be maximized.

Results

As social and economic solutions become increasingly more difficult to find, the future will look to today's youth for answers. Who and what youth are involved with today is often an indicator of their future direction. Across the nation and in Florida, research has shown that youth involved in 4-H are 1.6 times more likely to enroll in college compared to youth enrolled in other out-of-school activities. This year more than 240,000 Florida 4-H youth were engaged in: 133,280 science, engineering and technology projects; 135,213 civic engagement, community service and leadership projects; and 37,532 food, nutrition, health and personal safety projects. Projects designed to build capacity in youth. These youth development experiences were guided by more than 17,000 adult volunteers and 1,000 youth volunteers each contributing nearly 50 hours annually. Volunteers that provide opportunities for youth to experience 4-H, create safe and inclusive environments and mentor youth in achieving their goals. Without the involvement of trained volunteers and support of University of Florida faculty these youth development experiences would not be provided. Florida research has shown that more than 50% of the lifeskills developed by 4-H youth are directly related to a caring adult volunteer. The skills learned and capacity developed today by 4-H youth will be the answer to issues surrounding society's problems including childhood obesity, food safety and security, financial stability, sustainable energy and climate change.

4. Associated Knowledge Areas

KA Code	Knowledge Area
901	Program and Project Design, and Statistics
902	Administration of Projects and Programs

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

The weak economy and reduction of funding in the state continues to impact research. Also, weather conditions common to the tropics including hurricanes, weather extremes from drought to flooding have impacted Florida over the past year.

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

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 17

1. Name of the Planned Program

Global Food Security and Hunger--research

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%	5%	
102	Soil, Plant, Water, Nutrient Relationships	0%	0%	5%	
111	Conservation and Efficient Use of Water	0%	0%	5%	
133	Pollution Prevention and Mitigation	0%	0%	5%	
201	Plant Genome, Genetics, and Genetic Mechanisms	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%	
206	Basic Plant Biology	0%	0%	5%	
301	Reproductive Performance of Animals	0%	0%	5%	
302	Nutrient Utilization in Animals	0%	0%	5%	
303	Genetic Improvement of Animals	0%	0%	5%	
306	Environmental Stress in Animals	0%	0%	5%	
307	Animal Management Systems	0%	0%	5%	
401	Structures, Facilities, and General Purpose Farm Supplies	0%	0%	10%	
402	Engineering Systems and Equipment	0%	0%	5%	
403	Waste Disposal, Recycling, and Reuse	0%	0%	5%	
501	New and Improved Food Processing Technologies	0%	0%	5%	
603	Market Economics	0%	0%	5%	
	Total	0%	0%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890

Actual	0.0	0.0	19.7	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	487837	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	487837	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

The NIFA Global Food Security and Hunger in Florida includes projects related to enhancing sustainability; reponding to and integrating with changes in climate and global agro ecosystems; ensuring food safety and security; enhancing, collecting and preserving germplasm and developing renewable resources.

2. Brief description of the target audience

County Extension Faculty
Producers/Growers
Ranchers
Ag industry
government
General Public

V(E). Planned Program (Outputs)

1. Standard output measures

2010	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: 2010
Actual: 41

Patents listed
Variants of ADP-Glucose Pyrophosphorylase Affecting Phosphate Sensitivity And Other Parameters^
LA99016 - Oat
Horizon 201 - Oat
UFWC5 - Clover, white
A Cecropin-Melittin Hybrid Peptide With A Reduced N-Terminal Extension Confers High Levels Of Resistance To Xylella Fastidiosa In Transgenic Grapevine
Guava Leaf Sulfur Volatiles Act as Repellents for Diaphorina Citri
Southern Highbush Blueberry Plant Named 'FL 05-107'
Southern Highbush Blueberry Plant Named 'FL05-627'
Southern Highbush Blueberry Plant Named 'FL04-235'
Southern Highbush Blueberry Plant Named 'FL 03-291'
Southern Highbush Blueberry Plant Named 'FL02-40'
Southern Highbush Blueberry Plant Named 'FL01-173'
Southern Highbush Blueberry Plant Named 'FL96-43'
Eucalyptus Plant Named 'G2'
Eucalyptus Plant Named 'G1'
Eucalyptus Plant Named 'G4'
Eucalyptus Plant Named 'G3'
Coleus plant named 'UF06419'
Coleus plant named 'UF0646'
RFID Tote for Shipment of Pharmaceutical Products
Kernel Size Control by Expression of the Sorbitol Dehydrogenase-1 Gene
Neuropeptides and Their Use for Pest Control (CON)
Prop-Strip and Prop-Tube for Transplanting and Rooting Plant Cuttings
High Frequency Airway Oscillation for Exhaled Air Diagnostics
Aglaonema plant named 'UF-808-4'
Efficacious Natural Products for Control of Medically-Important Diptera
Viral-based Transient-Expression Vector System For Trees That Allows Multiple Applications
Ellagitannin-Protein Nanoparticles and Method of Fabrication
Passive Subsea Oil Containment System
Broad Antiviral Activity in a SOCS-1 Antagonist Peptide
Guava Leaf Sulfur Volatiles Act as Repellents for Diaphorina Citri
Wireless Based Marine Pathogens Detection System
NecDew Ant Bait Spray
Biocatalyst for Complete Conversion of Hemicellulose Hydrolysates to Biobased Products
Control of Mosquito Larvae with Bti Toxins and TMOF
Broad Antiviral Activity in a SOCS-1 Antagonist Peptide
Fly Attractant System with Toxicant-Treated Cords
Ecdysteroids and Agonists for Controlling Termites

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	1046	1046

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	Improved techniques in the area of natural resources and environment that improve global food security and reduce hunger
2	Improve techniques in the area of plants and their systems that increase global food security and decrease hunger
3	Improve techniques related to animal production that increase global food security and reduce hunger
4	Determine economic impacts of changes in domestic policies on the competitiveness of southern agriculture
5	Find ways to assure safety, nutritional value and sensory attributes of foods vital for the US food processing and agricultural industries
6	Development of cow-calf production systems which reduce unit cost of production while still producing high quality beeg that meets the demands of today's consumer.
7	Evaluate VIS/NIR/FIR and other sensory technologies which are useful for selective fruit harvest, which appropriate sensor fusion, to improve fruite detection and enable fruit grading by majority and size

Outcome #1

1. Outcome Measures

Improved techniques in the area of natural resources and environment that improve global food security and reduce hunger

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Enhancing sustainability through integrated nutrient management in conventional and certified organic vegetable production systems.

Florida's population is expected to reach 25 million by 2025 (Keen, 2006) and during the past year, agricultural land prices have increased by 50-88% across the state (Reynolds et al., 2006). Of the 44,000 farms in Florida, approximately 85% are less than 180 acres, and 75% of those farms have earnings of less than 25,000 dollars a year (USDA NASS, 2003). All farms in Florida face increasing pressure to manage water resources more effectively. Nationally, agriculture accounts for 80% of the nation's consumptive water use. Florida's Department of Agriculture and Consumer Services initiated Best Management Practices (BMPs) (FLDACS, 2005) to reduce excessive nutrient loads of nitrogen (N) and phosphorus (P) into surface and groundwater (FDEP, 2004). N and P soil applications may be regulated in the future if sufficient progress to water quality is not made. The primary goal of the Sustainable and Organic Vegetable Production Program at the University of Florida is to minimize the negative environmental impacts of nutrient management in vegetable systems while ensuring long term security of local farming systems. Despite the ongoing application of organic soil amendments in cropping systems, there is an acute need for information and technologies to plan and monitor nutrient management programs using plant and animal fertility sources. No studies have been conducted to elucidate the rate and amount of plant available nutrients as influenced by management, soil type and climate from cover crops in subtropical conditions.

What has been done
1. Assess nutrient release patterns of common organic soil amendments (OSA) in controlled environments to increase our knowledge of factors governing rate of nutrient release and to facilitate field-level nutrient management. 2. Increase adoption of cover crops in Florida vegetable

cropping systems by identifying species and varieties suitable to subtropical conditions and optimizing their management to improve nutrient cycling 3. Develop novel management strategies in vegetable cropping systems that optimize nutrient utilization from OSA while reducing risk to soil and water quality. 4. Form a multidisciplinary stakeholder advisory board whose mission will be to develop intellectual and financial infrastructure to reduce or eliminate barriers to agricultural sustainability through collaborative long term farming systems research and community outreach.

Results

Knowledge change was measured at several extension programs during the year. A Master Gardener's webinar was delivered to nearly 400 volunteer master gardeners across the state. Topics included organic farming practices and IPM. Of those attendees who submitted an evaluation (n=121) 94% reported an increase in knowledge. 90% of those same respondents indicated they would change their current gardening practices based on their new knowledge. Florida Small Farm and Alternative Enterprises Conference" was held at the Osceola Heritage Park, Kissimmee, Florida on August 1-2, 2009. In attendance were farmers, allied industry representatives, researchers, educators, institutional members, policy-makers, small farm commodity associations, foundations, and others interested in strengthening the small farm community in Florida. The conference included many activities that benefitted the small farms industry: Opening session featuring Innovative Farmer Spotlights, A general session featuring keynote speaker knowledgeable on sustainable agriculture, Dr. John Ikerd, Concurrent educational sessions and workshops to share results of groundbreaking research and provide educational support for producers to operate sustainable and profitable enterprises, An exhibition area to introduce new products and technologies to small producers, and the facilitation of farmer networking during sessions, and refreshment breaks and lunches featuring local products from Florida small farms. The Small Farms Conference evaluation (n=212) indicated an 89% increase in knowledge gain and the same percentage indicated the intent to change practices based on their new knowledge. The attendees noted that the networking opportunities were very valuable as well.

4. Associated Knowledge Areas

KA Code	Knowledge Area
101	Appraisal of Soil Resources
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
133	Pollution Prevention and Mitigation

Outcome #2

1. Outcome Measures

Improve techniques in the area of plants and their systems that increase global food security and decrease hunger

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Improve techniques related to animal production that increase global food security and reduce hunger

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Florida beef and dairy production systems contribute over $1 billion annually to the state?s economy. In addition, there are over 300,000 horses in Florida with an associated cash flow of $1.25 billion per year. Forage is a major component of the diet of all livestock in the state. Planted pastures occupy approximately 3.5 million acres and native grasslands (includes forestland that is grazed) another 6 million acres. In spite of their large contributions to the state?s economy, limitations remain among forages currently utilized in Florida. Bahiagrass, which is grown on approximately 2.5 million acres for forage, produces 85% of its yield during the period from April through September. Lack of cool-season production results in greater need for supplement feeds and increased cost to livestock producers. Bahiagrass also is relatively low in digestibility and this limits performance of animals consuming bahiagrass herbage. Bermudagrass, though highly desirable for hay production, requires high inputs and may not tolerate close, repeated grazing by horses. More persistent types would benefit horse owners. Warm-season annual grasses like sorghum and pearl millet are quite high in nutritive value, but they must be reseeded every year and they are difficult to manage under grazing. An alternative forage that is better suited for grazing yet also has high nutritive value would be an important advance, particularly if it was a perennial. Limpograss is becoming very important to beef cattle producers in South Florida, but new genotypes with greater persistence and increased digestibility would benefit livestock operations. Thus, there is a need for continued evaluation of potential new forage species and genotypes for Florida forage-livestock systems. This project will assess digestibility and grazing tolerance of bahiagrasses selected for greater cool-season production, measure yield and nutritive value of seeded bermudagrass compared to traditional hybrids, test Mulato brachiariagrass for adaptation and performance in North Florida, and assess grazing tolerance and digestibility of new breeder?s lines of limpograss.

What has been done

1) to assess grazing tolerance of new bahiagrass (Paspalum notatum Flugge) germplasm selected for superior cool-season production, 2) to screen for superior nutritive value a large bahiagrass population that was selected for greater cool-season production, 3) to compare yield and nutritive value under clipping of commercially available, seed-propagated bermudagrass cultivars and currently used, vegetatively propagated hybrid bermudagrasses, 4) evaluate the potential of Mulato brachiariagrass (Brachiaria spp.) as a new forage in North Florida, and 5) screen for grazing tolerance and digestibility of new limpograsses (Hemarthria altissima) developed in Agronomy breeding programs.

Results

Outcomes/Impacts Grazing studies with limpograss have identified the three most promising breeder's lines for further studies and potential cultivar release to growers. These entries will be multiplied during 2011 and large-scale evaluation will ensue prior to commercial release. Studies with mulato brachiariagrass have led to recommendations that it not be planted on poorly drained sites and that its use be primarily limited to South Florida due to limited cold tolerance. This information has been incorporated into extension programming and producer guides. Studies with bahiagrass lines have shown that new genotypes require greater care in management, and these recommendations are part of information being provided to growers. Recently completed studies with Tifton 85 bermudagrass have provided information for grassland models and management guides. Treatments were all combinations of three post-graze stubble heights (SH; 8, 16, and 24 cm) and three regrowth intervals (RI; 14, 21, and 28 d). Short SH (8 cm) with long RI (28 d) or tall SH (24 cm) with short RI (14 d) produced greatest herbage accumulation (11-15 Mg/ha/yr). Lowest or nearly lowest herbage accumulation occurred with 14-d RI and 8-cm SH or 28-d RI with 24-cm SH (7.4-12 Mg/ha/yr). Intermediate levels of RI (21 d) or SH (16 cm) produced consistent herbage accumulation regardless of level of the other factor. Nutritive value was primarily affected by RI, and P (3.1 to 2.8 g/kg), crude protein (150 to 108 g/kg), and in vitro digestible organic matter (602 to 582 g/kg) decreased as RI increased. These data indicate that intermediate levels of SH (16 cm) and RI (21 d) provided relatively high Tifton 85 herbage accumulation and nutritive value while minimizing negative impacts on persistence-related responses. Other research determined the effects of SH and N fertilization on bermudagrass litter deposition, decomposition, and N release. Existing litter mass (1730 to 2510 kg/ha) and litter deposition rate (10 to 30 kg/ha/d) increased as SH increased, but N fertilization had no effect on either. Increasing SH from 8 to 24 cm resulted in lower existing litter N (20.5 vs. 19.2 g/kg) and lignin (186 vs. 148 g/kg) concentrations and a greater C:N ratio (24 vs. 26). Increasing N fertilization increased litter N concentration from 11.5 to 19.2 g/kg and decreased C:N ratio from 43 to 26, but N had no effect on lignin and ADF concentrations. Bermudagrass litter quantity was affected more by grazing intensity than by N fertilization, but N fertilization had a greater impact on litter composition than did grazing intensity. Pasture SH had no effect on decomposition of litter mass, but increasing N fertilization increased decomposition rate. Immobilization of litter N began almost immediately after placement in the field regardless of treatment, did not reach its maximum for up to 60 d, and lasted more than 128 d for most treatments. Increasing SH and N fertilization increased N immobilization in plant litter. Nitrogen immobilization in bermudagrass litter occurs across a wide range of pasture management practices, impacting N availability for plant growth.

4. Associated Knowledge Areas

KA Code	Knowledge Area
302	Nutrient Utilization in Animals

Outcome #4

1. Outcome Measures

Determine economic impacts of changes in domestic policies on the competitiveness of southern agriculture

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Domestic U.S. and foreign agricultural policies as well as those of international institutions affect the competitiveness of Southern agricultural commodities in world markets. The purpose of this project is to employ quantitative methods and international trade theories to examine how and to what extent domestic and foreign agricultural policies as well as international institutions and policies affect the competitiveness and performance of commodity markets in relation to Southern agriculture.

What has been done
This project emphasizes cooperative efforts of the individual states and agencies involved in the activities. The participating states will develop common methodologies to be used to accomplish the stated objectives and then collaborate in collecting data, conducting analyses, and presenting results. Descriptive economic analyses, and econometric techniques will be used to analyze the effects of potential and current preferential trading agreements on U.S. and, in particular, Florida agriculture. Regression analysis will also be utilized to estimate import and export price and expenditure elasticities for specialty crops.

Results
Food consumption in China has experienced dramatic changes over the last several decades as a result of strong income growth and urbanization. These changes include: increasing consumption of fruit and livestock products and fewer food grains; choosing food on the basis of quality, safety, and other factors in addition to price; increasing demand for food away from home; and increasing demand for non-traditional products, such as dairy products and wine. Cross-price elasticities with respect to the change of food price has a large and significant effect on the quantity consumed of other broad categories of goods such as clothing and footwear,

transportation, medical services, education, recreation, communication, and housing expenses especially for poor countries. Income and own-price elasticities of demand across 144 countries indicates that poor countries are much more responsive to changes in income and prices than rich ones. This is particularly true for food consumption.

4. Associated Knowledge Areas

KA Code	Knowledge Area
603	Market Economics

Outcome #5

1. Outcome Measures

Find ways to assure safety, nutritional value and sensory attributes of foods vital for the US food processing and agricultural industries

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Assuring the production and quality of US agricultural commodities, processed foods and beverages is vital to the country's security and market competitiveness. Fresh and processed foods need to be safe as well as nutritious and good tasting. Maximizing sensory attributes and nutritional value while retaining fresh-like quality and ensuring safety are requirements for all food processors eager to conquer diverse emerging markets. The goals of this project are (I) to carry out exploratory research on stabilization and activation of citrus and other food enzymes and (II) to develop new and improved methods for plant and food pathogen detection, quality assurance of food and beverage products. Pectic enzymes are used for viscosity reduction and yield increase in the fruit juice industry. Lipases are used in the production of natural flavors. Stabilization and reuse of enzymes has the potential to decrease production costs and increase productivity. The effects of high hydrostatic pressure (HHP) on enzyme activity will be characterized by applying HHP to pectic enzymes and lipases at different temperatrues. Faster and more accurate and automated quality methods are required in the food industry. This research will focus on developing novel sensors, biosensors or rapid assays to replace the current assays for pectinesterase and oil content in juice. Physical, biochemical and electrochemical strategies will be used. We also expect to develop biosensors for indirect rapid

detection of food pathogens. Citrus Huanglongbing (HLB)is one of the most threatening citrus diseases in the world and it is gravely affecting Florida's industry. Rapid in-field diagnosis of the disease can help reducing its spread. Knowing the changes in metabolites present in infected trees can help understanding the mechanisms of infection. In this research we will focus on identifying biomarkers for rapid detection of citrus HLB. Based on these biomarkers, we expect to develop portable sensors or biosensors for rapid, in-field diagnosis of HLB. Outcomes. a) Improved understanding of the effects of HHP on enzyme catalysis and structure. b) Incorporation of research findings into two graduate courses taught by Dr. Reyes De Corcuera: Citrus Processing Technology and Food Kinetics. c) Quality assurance laboratories are expected to save time and improve product quality by implementing a faster PME activity method for fruit juices. d) A faster and more sensitive method to determine oil in juice is expected to reduce processing costs to citrus juice and oil processors by reducing assay time and providing feed-back process control and more accurate quality control. e) In-field determination of titratable acidity that citrus growers can readily and inexpensively adopt at harvesting and increase crop value. f) Rapid methods for Salmonella and E. coli O157:H7 detection in foods reduce assay time and minimize the likelyhood that contaminated or under processed foods reach the consumer, thus, minimizes foodborne disease outbreaks. g)In-field diagnosis of HLB is expected to help citrus growers mitigate the spread of this disease

What has been done

Assuring safety, nutritional value and sensory attributes of foods is vital for the US food processing and agricultural industries. The goals of this project are (I) to carry out exploratory research on stabilization and activation of citrus and other food enzymes and (II) to develop new and improved methods for plant and food pathogen detection, quality assurance of food and beverage products. Most foods are very complex biological systems that undergo metabolic, chemical and physical changes from harvesting to processing. The specific objectives of this research are: 1. To characterize the kinetics of pectic enzymes and lipases, immobilized and in solution under different hydrostatic pressure and temperature conditions. 2. To develop electrochemical enzyme biosensors for selective quantification of fruit juice quality and plant metabolism. 3. To develop rapid methods for the determination of citrus oil. 4. To develop a rapid method for in-field determination of titratable acidity in non-climacteric fruit. 5. Identify biomarkers for rapid detection of citrus Huanglongbing. 6. To develop rapid methods for food microbiology. Outputs of this research include: I. Enzyme Stabilization. a) Improved technology that combines HHP and temperature in enzyme catalysis b) Incorporation of research findings into two graduate courses taught by Dr. Reyes De Corcuera: Citrus Processing Technology and Food Kinetics.

Results

Goal (I) "to carry out exploratory research on stabilization and activation of citrus and other food enzymes". HHP reduced thermal inactivation of lipase by up to 152% after 4 h at 80 C and 400 MPa when compared to incubations at low pressure. No significant differences were found in activation energy (Ea) at different pressures, irrespectively of the pressurization and heating sequence, and were between 35.7 +/- 3.5 and 47.8 +/- 8.2 kJ/mol. Increasing pressure up to 350 MPa increased lipase activity while pressures greater than 350 MPa maintained or decreased lipase activity. Activation volume (Va) appeared negative between ambient pressure and 200MPa in contrast to a positive Va between 300 and 600 MPa. Apparent Va was 14.3 +/- 1.7 or 15.2 +/- 2.2 cm3/mol at 40 or 80 C, respectively, between 300 and 500 MPa. Lipase-catalyzed synthesis of isoamyl acetate in hexane at 10 to 250 MPa at 80 C and 1 to 100 MPa at 40 C resulted in activation volumes of -12.9 +/- 1.7 and -21.6 +/- 2.9 cm3/mol respectively. Increasing pressure from 10 MPa to 200 MPa resulted in approximately 10-fold increase in Vmax at both 40 and 80 C. Pressure increased KM from 2.4 +/- 0.004 to 38.0 +/- 0.684 mM at 40 C. In contrast at 80 C pressure did not affect KM. Goal (II) to develop new and improved methods for plant and food

pathogen detection, quality assurance of food and beverage products. Metabolites that are in significantly different concentrations in leaves from HLB-infected trees compared to leaves from healthy are: hesperidin, naringenin, quercitin and three unknown metabolites determined by CE. Optimized extraction conditions for CE were a mixture of methanol, water, and chloroform in an 8:1:1 ratio as the solvent, followed by 30 min sonication on ice, and 12-h extraction at 0 C. Optimal separation was achieved in a semi-aqueous BGE solution consisting of 8.5mM of sodium borate (pH 9.3), 15% ACN, and 9% 1-butanol yielded the best peak separation with detection at 190 nm. Isocaryophyllene, alpha-selinene, beta-selinene and fructose determined by GC-MS were also potential biomarkers. Metabolites that are in significantly different concentrations in leaves from HLB-infected trees compared to leaves from healthy and zinc-deficient trees are: L-proline, beta-elemene, (-)trans-caryophyllene and alpha-humulene as well as one unknown metabolite. Approximately 900 compounds were detected by HPLC-MS in leaves from both healthy and HLB-infected trees and showed three zones with significant variation in compound concentration. Metabolite-based rapid methods have the potential to detect pathogens growing in culture media after 6 h incubation at levels of 6 CFU/25 g of sample. Metabolite-based quantification can be potentially achieved by the use of non-selective media but is more likely to be successful with selective media. Some metabolites have been detected as potential biomarkers of food borne pathogens. Confirmation is underway.

4. Associated Knowledge Areas

KA Code	Knowledge Area
501	New and Improved Food Processing Technologies

Outcome #6

1. Outcome Measures

Development of cow-calf production systems which reduce unit cost of production while still producing high quality beeg that meets the demands of today's consumer.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Until recently, the beef cattle industry has never had the reproductive tools available to facilitate widespread, successful adoption of artificial insemination technologies. The need for increased

efforts to transfer this technology to the industry has never before been greater. Pregnancy rates of 55% or greater to TAI in postpartum beef cows are now consistently achievable. Despite the relative success of these protocols, producers have been slow to adopt the technology. The driving force behind adoption of these reproductive management technologies should be the profit derived from improved calf uniformity at weaning and enhanced genetic potential. Ultimately, prior to adoption of any new technology, producers require confidence that the technology will not fail. Generally, that confidence is met when producers have witnessed success in other cattle operations. Therefore, together with traditional Extension dissemination methods and involvement of producers may be the necessary impetus to demonstrate success of these reproductive management practices and initiate an increase in adoption of TAI. EXPECTED IMPACTS/OUTCOMES. The anticipated outcomes of this program include enhanced working relationships among producers, extension specialists, and veterinarians and an increase in profit for beef operations resulting from improvements in reproductive management. Ultimately, increased profits for the producer will be achieved through a higher percentage of cows calving during a more concentrated time frame and earlier in the calving period, as well as an improvement in genetics resulting from use of high accuracy, genetically proven, superior sires.

What has been done

1. Development of cow-calf production systems which reduce unit cost of production while still producing high quality beef that meets the demands of today's consumer. 2. Development and integration of reproductive management technologies into management systems. 3. Maintain and enhance formal and informal linkages which facilitate outreach and information sharing among committee members and with beef cattle producers in the region.

Results

Use of the Nutrition Horizon Grade One product will not increase the average number of transferable embryos per collection, but the quality of transferable embryos may be improved after embryo donor cows received Grade One prior to embryo collection. Supplementation of progesterone during in vitro embryo culture does not directly enhance embryonic cleavage, development to blastocyst stage or blastocyst viability or metabolic characteristics. Pulmonary arterial pressure classification does not appear to have an effect on feeding behavior traits, including daily feeding duration or eating rate (g DM/minute). Pulmonary arterial pressure is not correlated to performance or feeding behavior traits, but identification of cattle with high PAP may have greater performance and feed efficiency. Male beef calves are routinely castrated prior to leaving the cow-calf operation or certainly before entering a stocker or feedlot environment. When managing weaned beef calves early post-castration in sub-tropical environments, our data would suggest that ADG is impacted for a period of less than 42 days post-castration. Surgical methods elicit more of an acute negative impact while banding resulted in a delayed suppression of gain, nonetheless 42 days post-castration all calves gained similarly regardless of castration method. Feed intake was not different early post-castration among treatment groups however there was some evidence suggesting that BAN calves endured delayed suppression of intake. Feed intake over the entire trial was not affected by castration method. Castration should be carried out as early as possible, the method a producer chooses to utilize may not be as important as the age and weight they choose to castrate their calves. In all measures observed in this study including stress and performance, steers previously castrated prior to weaning were preferable to late castrates. If calves are castrated pre-weaning the impact that the stress of castration will have on growth rate, feed intake, water intake, and feed efficiency is minimized. Mannheimia haemolytica vaccination results in an acute phase protein reaction as measured by plasma Hp concentrations in beef calves. Saline-injected calves without previous MH vaccine exposure experienced reduced BW gain and G:F compared to calves administered a secondary MH vaccine. Calves in

the present study may have been experiencing a subclinical MH infection, which was protected in MH vaccinated calves.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals

Outcome #7

1. Outcome Measures

Evaluate VIS/NIR/FIR and other sensory technologies which are useful for selective fruit harvest, which appropriate sensor fusion, to improve fruite detection and enable fruit grading by majority and size

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There is a growing interest among researchers, industries, and growers to pursue automation solutions to reduce the increasing disparity between U.S. production labor costs and those of developing countries. However, it is clear that novel approaches need to be taken to solve the technological problems, as well as the manufacturing and maintenance challenges which will surface as high-tech equipment systems are implemented in harsh agricultural environments. Past automation efforts have demonstrated that research efforts that jointly design the machine and plant systems have the greatest opportunity for success. Consequently, it is important to closely coordinate research in both areas. This program will combine research from two major Florida horticultural production applications (greenhouse spraying and citrus harvesting), which will provide a basis for building upon the fundamental technologies necessary to implement robotic solutions in horticultural production. Specific research in sensing technologies, manipulator configuration, visual servo control, end effector development and autonomous guidance systems will be pursued to advance these technologies as can be applied to the specific applications listed and eventually extended to other horticultural production systems. In addition, research in optimal grove and tree factor design will be integrated with machine systems development to improve the plant-machine system viability with regard to optimal production efficiency.

What has been done

1. Evaluate VIS/NIR/FIR and other sensor technologies which are useful for selective fruit harvest, with appropriate sensor fusion, to improve fruit detection and enable the tree fruit grading by maturity and size. 2. Implement and improve visual servo control strategies which will be used to target and track fruit during harvest. Develop path planning strategies which will optimize harvesting time. 3. Develop novel end-effectors and manipulator arm configurations which will optimally harvest tree fruit. 4. Improve tree characteristics, orchard design, and cultural practices which will enhance the harvestability of citrus. 5. Develop robust vehicle guidance technologies for operation in orchards and greenhouses where traditional GPS based techniques are incapable of maintaining navigation information from satellites.

Results

The experimental results for our canker detection studies to date have given us confidence in our ability to discriminate between canker and other confounding disease conditions under static conditions. Under several different scenarios we have been able to discriminate at accuracies around 96%. We have also demonstrated that canker lesion reflectance spectra doesn't change during the season, and that we can detect lesions down to 2mm in diameter under static conditions. Finally, we have demonstrated the potential for implementing these approaches in a multi-spectral on-line systems operating at line speeds in excess of 5 fruit per second. We do not expect any problems with operating these approaches at 10 fruit per second. We therefore have developed a technology which could be implemented on-line under packinghouse conditions. The development work for enhanced fruit detection for robotic harvesting has documented a new approach for scanning a robotic harvesting region of interest which has the potential to significantly improve harvesting efficiency over approaches proposed in earlier works. This approach can be combined with normal ROI havesting strategy to effectively scan the ROI and then map fruit with in the ROI that my not be detectable from a single perspective viewing. The potential for improving fruit detection above 90% compared to earlier efforts in the 75% range, offers a potential significant improvement.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

The weak economy and reduction of funding in the state continues to impact research. Also, weather conditions common to the tropics including hurricanes, weather extremes from drought to flooding have impacted Florida over the past year.

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

Evaluation Results

Florida has many projects underway related to global food security and hunger. As a tropical state Florida produces many winter crops that feed the world and therefore research here that increased productivity while improving sustainability is paramount to the purpose of our research.

Key Items of Evaluation

Southern highbush blueberry acreage and production have increased rapidly in Florida during the last decade. Blueberry acreage has more than doubled in the last 10 years; production has increased from about 2.7 million pounds in 1996 to over 7.8 million pounds in 2007.The estimated value of the Florida blueberry industry increased by over 700% during this same period. During April 1 through May 20, Florida is the primary producer of fresh blueberries in the northern hemisphere. During this period, demand for fresh berries is strong and the supply is limited. Although the early-season market for blueberries is strong, planting and establishment costs are high in Florida because of the many inputs used in the current production system. One of the most expensive inputs is organic matter in the form of pine bark needed to make Florida soils more suitable for blueberry culture. The estimated cost for establishment of one acre of blueberries in Florida is between $18,000 and $22,000 of which $4000 to $6000 is for pine bark.

The overall goal of this project is to increase efficiencies of production and profitability of Florida blueberry growers. The specific objective was to reduce pine bark, fertilizer and water inputs by increasing their use efficiencies. Florida research showed that pinebark is crucial to increased blueberry production and that the new pinebark system developed used less than half as much pine bark increasing savings. This will increase the competitiveness of Florida's blueberry industry, both nationally and internationally. Other parts of this study are still ongoing

V(A). Planned Program (Summary)

Program # 18

1. Name of the Planned Program

Climate Change

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%	5%	0%	
102	Soil, Plant, Water, Nutrient Relationships	5%	5%	0%	
103	Management of Saline and Sodic Soils and Salinity	5%	5%	0%	
104	Protect Soil from Harmful Effects of Natural Elements	5%	5%	0%	
111	Conservation and Efficient Use of Water	5%	5%	0%	
112	Watershed Protection and Management	5%	5%	0%	
121	Management of Range Resources	5%	5%	0%	
122	Management and Control of Forest and Range Fires	5%	5%	0%	
123	Management and Sustainability of Forest Resources	5%	5%	0%	
124	Urban Forestry	5%	5%	0%	
125	Agroforestry	5%	5%	0%	
131	Alternative Uses of Land	5%	5%	0%	
132	Weather and Climate	15%	15%	0%	
133	Pollution Prevention and Mitigation	5%	5%	0%	
134	Outdoor Recreation	5%	5%	0%	
135	Aquatic and Terrestrial Wildlife	5%	5%	0%	
136	Conservation of Biological Diversity	5%	5%	0%	
141	Air Resource Protection and Management	5%	5%	0%	
	Total	100%	100%	0%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890

Actual	3.1	1.0	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**
32960	67196	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
32960	67196	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

Extension programs related to climate change support the gaining of knowledge and implementation of behavioral changes that help Florida Extension clientele to develop agricultural systems that maintain a high productivity in the face of climate changes and at the same time reduces green house gas emissions. These activities provide information that will help producers, industry leaders and the general public to plan and make decisions in adapting to changing environments, sustaining economic vitality, and taking advantage of emerging economic opportunities offered by climate change mitigation technologies obtained through scientific based research.

2. Brief description of the target audience

General public
producers
Agricultural industry
government officials

V(E). Planned Program (Outputs)

1. Standard output measures

2010	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: 2010
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	41	0	41

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 knowledge to develop an agricultural system that maintains high productivity
2	Increase behavior that supports the development of a highly productive agricultural system

Outcome #1

1. Outcome Measures

Increase knowledge to develop an agricultural system that maintains high productivity

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The total economic impact of the Florida citrus industry is reported to be in excess of $9.2 billion annually to the State of Florida. Polk County lies in the heart of central Florida along the Florida Ridge. This area is known for the production of large crops of high quality citrus. The 2008 Florida Agricultural Statistical Service (FASS) citrus tree inventory indicated that Polk County currently has the greatest number of acres of any Florida County devoted to citrus production at 82,629 acres. In Hillsborough County, citrus acreage has seen a steady decrease and is reported to be 10,946 acres. Polk and Hillsborough Counties represent 16.5% of the total state acreage in citrus production. According to the 2008-09 FASS citrus summary report, Polk and Hillsborough Counties produced at total of 34,363,000 boxes of citrus. This represents 18% of the total boxes produced in the state.

In Polk and Hillsborough Counties a significant amount of irrigation water is used for freeze protection of citrus and other fruit crops. Growers require accurate weather, tree condition information and the knowledge of agricultural microclimate conditions to make sound cold protection decisions specifically when these involve the use of water resources pumped from the Floridian Aquifer. Without this knowledge growers would use more water than required to protect their crops from freezing temperatures. It is estimated that annually an additional 4.36 billion gallons of water would be pumped from the Floridan Aquifer along with an increase of $1,308,000 in production costs associated with the operation of these irrigation systems. This weather information and the subsequent interpretation of local microclimate conditions are provided through a comprehensive cold protection educational program known as the Winter Weather Watch delivered by the citrus extension agent.

What has been done

The citrus extension agent uses a wide variety of education methods in delivering applied research information to citrus growers. The citrus agent has written articles in newsletters, trade magazines, manuals, posters, abstracts and proceedings. The agent organized and lectured at grower meetings, conferences and at the Florida Citrus Growers? Institute. The citrus agent conducted field demonstrations, maintained the UF/IFAS citrus agents? website, recorded daily, during the winter, a phone accessible weather forecasting service and developed computer models for pesticide applications. The agent conducted phone consultations, field visits and responded to email requests in support of the overall citrus extension educational effort.

Results

Over the past 5 years, 270 agricultural producers have subscribed to the winter weather watch forecast service. Producers participating in the program have accessed recorded weather forecast and cold protection information over 27,000 times since the agent began providing the service 9 years ago. This weather data, along with instructional information taught by the extension agent enables growers to predict site-specific minimum temperatures for individual grove and field locations. This information is vital to growers in determining when or if irrigation will be needed for cold protection that night. Growers can conversely use the educational information on cold protection taught by the citrus extension agent to determine when it is safe to turn off irrigation systems used for cold protection. It has been determined that this information has resulted in significant savings in pumpage from the Floridan Aquifer during freeze events (see impacts section). This savings in reduced water withdrawl results in an additional cost savings to growers in reduce fuel and labor required to maintain and operate irrigation systems during freeze events.

4. Associated Knowledge Areas

KA Code	Knowledge Area
132	Weather and Climate

Outcome #2

1. Outcome Measures

Increase behavior that supports the development of a highly productive agricultural system

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There are hundreds of acres in Florida of underutilized protective structures, mainly for citrus nurseries and ornamental production, whose owners need diversification to high-value crops before going out of business. At the same time, there are current, promising operations with blueberry, strawberry, and vegetable production that require of research and education to improve production, quality, and net income, while improving sustainability. This project devises strategies for crop diversification and appropriate water usage for crop maintenance and freeze protection under existing protective structures in several Florida counties, while educating specialty crop growers, stakeholders, and the general public throughout the state on the benefits of this technology for the present and future of Florida agriculture.

What has been done

1) Determine the biological and economic performance of alternative high-value vegetable and fruit crops under existing greenhouse, high tunnel, and screenhouse structures;
2) Assess the impact of protective structures and non-irrigation based freeze protection methods on water volume and quality for blueberry and strawberry winter production;
3) Evaluate the feasibility of alternative soilless culture methods to produce high-value vegetable and fruit crops under protective structures;
4) Develop educational and training programs and demonstration units for growers and the general public on the benefits and potential of producing high-value crops under protective structures in Florida;
5) Identify channels and develop strategies for established growers to market non-traditional vegetables and small fruit crops in local and statewide venues.

Results

b)Increasing Planted Area and Production under Protected Agriculture for Vegetables and Small Fruit Crops. The program showed through demonstrations, workshops, experimentation, and advising on the benefits of this technology to increase yields and quality and/or net income, and it has impacted directly production of strawberry, blueberry, tomato, pepper, and herbs in northeast, north-central, west-central, and southwest Florida counties. In strawberry, the number of plants transplanted under protective structures in Florida rose to 250,000 in 2010, and 6 growers have adopted this technology. Yields had increased between 25 and 50% in all cultivars in comparison with outside production. In pepper, 2 growers have planted 5000 plants of indeterminate and determinate bell pepper under high tunnels and greenhouses and remain committed to continue and expand this practice. In blueberry, a major grower started with 2 acres of high tunnels in 2008 and it was demonstrated that early yields (and likely higher market prices) increased by 4.5 ton/acre, while using only around 25% of the water volumes for freeze protection. These results directly impacted the establishment of 30 more acres of high tunnels (approximately 45,000 blueberry plants). In tomato, we are advising a major field tomato grower about the technologies needed to produce indeterminate tomato in 5 acres of greenhouses (approximately 44,000 tomato plants).

4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
132	Weather and Climate
136	Conservation of Biological Diversity

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Florida is presently being affected by the economic issues plaguing the world. There are also public policy changes, governemtn regulations and reduced appropriations affecting Extension and the land-grant university as a whole. There are competing programmatic challenges and the general public tired from years of stress and uncertainity are also reacting negatively as they try to save their jobs and homes. Florida has also been told to expect another 3 to 6% reduction in legislative funds and as counties are also being cut back by the state it is expected that IFAS and especially Extension will be seriously impacted.

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

Evaluation Results

Florida Extension is providing the information to producers necessary to develop agricultural systme that maintain high productivity during climate change while at the same time reducing greenhouse gas emissions and reducing the impact on the environment including the use of water resources. Farmers and growers are adopting alternative high-value vegetable and fruit crops that can grow within the protection of green houses, high tunnels and screenhouse structures. Extension is providing knowledge on protective structures and non-irrigation based freeze protection methos for reduced water volume while still protecting winter production.

Key Items of Evaluation

There are hundreds of acres in Florida of underutilized protective structures, mainly for citrus nurseries and ornamental production, whose owners need diversification to high-value crops before going out of business. At the same time, there are current, promising operations with blueberry, strawberry, and vegetable production that require of research and education to improve production, quality, and net income, while improving sustainability. This project devises strategies for crop diversification and appropriate water usage for crop maintenance and freeze protection under existing protective structures in several Florida counties, while educating specialty crop growers, stakeholders, and the

general public throughout the state on the benefits of this technology for the present and future of Florida agriculture.

Reducing Water Volumes Needed for Freeze Protection in Strawberry.High tunnels have been demonstrated by Extension to provide effective protection against cold temperatures. As a result, 3 traditional open-field growers invested on 6.5 acres of high tunnels in 2010. After 13 days of abnormally early freezing temperatures in late 2010 and early 2011, they had saved approximate 90% of the water volumes for freeze protection needed during those cold nights, which translated into savings of near 5 million gal of water

V(A). Planned Program (Summary)

Program # 19

1. Name of the Planned Program

climate change--research

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%	5%	
102	Soil, Plant, Water, Nutrient Relationships	0%	0%	5%	
103	Management of Saline and Sodic Soils and Salinity	0%	0%	5%	
104	Protect Soil from Harmful Effects of Natural Elements	0%	0%	5%	
111	Conservation and Efficient Use of Water	0%	0%	5%	
112	Watershed Protection and Management	0%	0%	5%	
121	Management of Range Resources	0%	0%	5%	
122	Management and Control of Forest and Range Fires	0%	0%	5%	
123	Management and Sustainability of Forest Resources	0%	0%	5%	
124	Urban Forestry	0%	0%	5%	
125	Agroforestry	0%	0%	10%	
131	Alternative Uses of Land	0%	0%	5%	
132	Weather and Climate	0%	0%	10%	
133	Pollution Prevention and Mitigation	0%	0%	5%	
134	Outdoor Recreation	0%	0%	5%	
135	Aquatic and Terrestrial Wildlife	0%	0%	5%	
136	Conservation of Biological Diversity	0%	0%	5%	
141	Air Resource Protection and Management	0%	0%	5%	
	Total	0%	0%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890

Actual	0.0	0.0	30.5	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	715935	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	715935	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	715935	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

These research projects generate scientific knowledge that ican be used to develop agriculture systems that maintain high productivity in the face of climate changes and reduce greenhouse gas emissions. These findings will help producers to plan and make decisions in adapting to changing environments in Florida, sustaining economic bitality and taking advantage of emerging economic opprotunities offered by climate change mitigation technologies.

2. Brief description of the target audience

Ag industry
Farmers and Producers
Ranchers
General Public

V(E). Planned Program (Outputs)

1. Standard output measures

2010	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: 2010
Actual: 6

Patents listed
Peach Tree Named 'UFSharp'
Increased Stress Tolerance and Enhanced Yield in Plants
Peach Tree Named 'UFGlo'
Heat Stable Mutants Of Starch Biosynthesis Enzymes (DIV)
Transhydrogenase Genes Increase Furfural Tolerance
Improving Crop Stress Tolerance, Yield and Quality via Glutaredoxin Overexpression

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	190	190

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 sustainable production practices for subtropical fruit production
2	Develop and provide climate information and decison support tools to help ag, forestry and water resource managers
3	advance optimization and econometric methods for water quality and quantity policy analysis
4	Provide an economic and quantitative analysis of the changes to socio-ecological systems due to climate and policy change.
5	To improve regional-scale water resource management using weather and climate forecast information

Outcome #1

1. Outcome Measures

Develop sustainable production practices for subtropical fruit production

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The Florida stone fruit industry once had a thriving industry of over 1600 hectares, however in 2009, current estimates placed stone fruit acreage at approximately 400 hectares statewide, with a growing portion of these plantings in Central and South Florida. Over the past 50 years, the University of Florida stone fruit breeding program has released stone fruit varieties well suited to low chill production areas with tens of thousands of hectares planted worldwide. During the last decade, low chill peach cultivars with non-melting flesh have allowed delayed harvest leading to greater physiological maturity and fruit quality. These characteristics allow growers to take advantage of a unique marketing window to maximize economic returns. Several key growers in Central and Southern Florida have planted more than 120 hectares. The objective of this grower effort is the development of a subtropical peach industry focused on producing early season fruit. The major markets for these fruit are medium to large sized supermarket chains and several smaller niches including farmer's markets, fruit stands, and community supported agriculture (CSA) farms. Economic analyses of establishment, production, and identifying marketing opportunities are essential to continued growth of the subtropical stone fruit industry. Development of sustainable practices to support industry expansion is an important function of this project. Currently, the industry is limited to one commercially recommended rootstock, Flordaguard due to the presence of an endemic root-knot nematode, Meloidogyne floridensis, as other root-knot nematode resistant rootstocks are not resistant to this particular nematode. It is essential that other rootstocks be developed and evaluated as the industry expands to enhance biodiversity. Increased pressure on agricultural producers to adhere to new standards for nutrient levels in agricultural wastewater has brought fertilization and irrigation practices to the forefront. Much of the research on nutrition in stone fruit has been conducted in temperate climates where fruit development and shoot growth coincide. In subtropical climates, fruit production is rapid in the early growing season, and trees continue to produce vegetative biomass well into the autumn season. Much of the expanding stone fruit industry is being planted in areas with sandy soil types, which have a high leaching potential. Thus, application method, rates of plant nutrients, and costs

must be examined for production in these subtropical climates to ensure environmental sustainability.

What has been done

Specific objectives of this project include 1) evaluate scion and rootstock of new plant material for horticultural characteristics; 2) evaluate rootstock material for resistance to Meloidogyne floridensis and investigate mechanism of resistance and/or tolerance in Flordaguard rootstock; 3) optimize fertilization and irrigation practices for maximum output of high quality fruit in conjunction with economic analyses.

Results

Several new peaches have been developed that require lower chill factors and provide maximum output of high quality fruit. Florida continues to look at the possibilities of developing more varieties that could increase the production of peaches as well as other stone fruits in Florida.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
132	Weather and Climate

Outcome #2

1. Outcome Measures

Develop and provide climate information and decison support tools to help ag, forestry and water resource managers

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Climate changes in response to natural phenomena across a range of time-scales. Evidence suggests that climate is now also changing as a result of human activities, such as emission of greenhouse gases and changing land uses. The fourth assessment report of the Intergovernmental Panel on Climate Change (IPCC, 2007) concluded that global average mean

temperature and the frequency of hot extremes, heat waves, and heavy precipitation, will very likely increase in response to increased concentrations of greenhouse gases in the atmosphere. The IPCC report also concluded that the globally averaged net effect of human activities since 1750 has been one of warming. Society will have to make decisions in the coming years about how to adapt to a changing climate. Climate variability and climate change create risks to all sectors of the economy. Climate is already a prime factor in 9 out of 10 disasters, many of which cost billions of dollars and thousands of lives. Effective preparation for possible effects of climate change in the future includes the engagement of resource managers, planners, public works officials, local managers, community development specialists, businesses, residents and property owners. The challenge is to provide these diverse stakeholders with trusted, useful, science-based information so that they in turn can make informed decisions. Under this project we will develop and provide climate information and decision support tools to help agriculture managers better cope with uncertainty and risks associated with climate variability and change. We propose to enhance the understanding of crop-climate-soil interaction at a regional scale, develop risk assessment tools using climate datasets and mathematical models that simulate the effect of climate scenarios on crop development and yield, and disseminate research outcomes on the potential effects of climate change on crop production and adaptation options to users and stakeholders.

What has been done

. Enhance the understanding of crop-climate-soil interaction at a regional scale: 1a. Enhance existing database by developing new agro-climatological variables for risk assessment of crop production in the region 1b.Maintain and update current database and metadata with climate, crops and soils variables for enhanced analysis and dissemination to clientele 1c.Enhance the current NC-1018 database with climate data that will be developed based on climate change projection models. 2. Application of risk assessment tools, including the existing NC-1018 database, for the crop-climate-soils interface on a regional scale: 2a. Crop production risks due to the variability of crop-climate-soils: under this objective we will continue to develop and enhance plant, soil, and pest models that are capable of evaluating crop production systems responses to environmental challenges 2b.Potential effects of climate change on crop production at a regional scale. 2c. Evaluate potential and active strategies for crop management adaptation on a regional basis in the face of climate change. 3. Enhance the understanding of potential bioenergy production systems: 3a. Use existing crop simulation models to determine the appropriate bioenergy species for sub-regions based on climate. 3b. Develop cropping systems to include both food, fiber, and fuel crops that maintain food security. 4. Disseminate the research outcomes on the potential effects of climate variability and climate change effects on crop production resource use and adaptation options to users and stakeholders.

Results

Leaf wetness monitoring and modeling have been used to implement a web-based forecasting system to predict Anthracnose and Botrytis fruit rot epidemics on strawberries and help strawberry producers in Florida avoid unnecessary applications of pesticide and reduce production costs. The models utilized leaf wetness and temperature during the wet period to predict disease outbreaks. The most effective models were embedded in a web-based tool developed for use by growers to schedule their fungicide applications. This internet-based forecasting system to predict these diseases, the Strawberry Advisory System (SAS), was implemented on the AgroClimate website using weather data from the Florida Agricultural Weather Network. Growers can select the location closest to their plantings and SAS will provide a prediction of disease incidence and recommendations for fungicide applications. Users can also be provided warnings of the need to spray via email or text messages. In preliminary trials, SAS

has been successful in eliminating many unnecessary fungicide applications and has proven user friendly.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
132	Weather and Climate

Outcome #3

1. Outcome Measures

advance optimization and econometric methods for water quality and quantity policy analysis

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
This project focuses on collecting information, developing new methodologies, and applying these methods to data analysis to facilitate public policies in: (1) allocation of limited water resources among competing users, (2) regulation of nonpoint source pollution from agricultural and urban areas.

What has been done
1. Collect primary data on performance and outcomes of currently used policies and management strategies for water allocation and water quality 2. Develop innovative optimization and econometric models to analyze performance of currently used and innovative policies for water allocation and water quality 3. Utilize these methods to examine critical water resources issues in Florida, Southeastern US, and internationally, and derive policy recommendations.

Results
1) a simple model of a water utility rate design decision was developed. Preliminary results demonstrated that the same water conservation goal can be achieved by water suppliers using a

variety of rate structures. Hence, water rate characteristics along cannot be used as an indicator of effectiveness of a rate structure in achieving utilities water conservation objective. 2) Based on the analysis of several pilot performance-based policies for agricultural pollution control, a set of characteristics of the performance measures were identified, and summarized in a review to be used by policy makers; 3) It was shown that Master Gardener, water quality monitoring volunteers, and/or water resource protection group participants are more likely to report changes in their yard landscaping and their fertilizer and chemical use behaviors. Households' demographics, residence, environmental attitudes, and news sources were also found to be correlated with reported changes in behavior. 4) Based on qualitative information collected through focus group studies in the Lower St Johns River Basin, several characteristics of the basin management action plan (BMAP) decision-making process and BMAP pollution abatement strategies were identified that contributed to the existing disagreement among the stakeholders.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
132	Weather and Climate

Outcome #4

1. Outcome Measures

Provide an economic and quantitative analysis of the changes to socio-ecological systems due to climate and policy change.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
This project will enhance our understanding of how human and natural systems are interrelated through the analysis of (1) Land use fragmentation and spatial spillovers due to local policies (e.g. zoning and environmental policies). (2) Cost of agricultural labor and causes and impacts of illegal migration and border enforcement on state, national and international markets. (3) Effects

of environmental policy on the environmental performance of manufacturing industries and housing. (4) Effects of public policy on economic and social resilience in a changing climate.

What has been done

1) Estimate spatial interactions or spillovers due to individual-level location decisions in response to changes in domestic and international policy. (2) Examine the effect of individual choice location decisions on the origin and receiving country or region due to changes in preferences and immigration policies. (3) Determine the effect of green technologies in manufacturing industries and housing on reducing toxic air releases under the induced innovation hypothesis, porter hypothesis, environmental policy and voluntary programs. (4) Evaluate socio-economic impacts of changes in environmental policies in response to climate change and increased climate variability. Outputs: Outputs include activities, events, services, and products that reach audience. These are summarized in turn: Activities include conducting surveys, analyzing data using statistical methods. Attend conferences, symposia, workshops, and trainings. Services include consulting, advising, and tutoring. Expected Products include curricula; data or databases; statistical models; information, skills, and technology for individuals, communities and programs; or students graduated in agricultural sciences.

Results

(a) results indicate that individual decisions, zoning and environmental policies fragment the landscape in the states of Maryland and Ohio; (b) If spatial spillovers are not taken into account, the validity of estimates in land use models is compromised. Therefore, an alternative estimation specification is necessary. In terms of objective (2), the following outcome was generated: empirical results indicate that international migration in Mexico is being used as an strategy to leave agricultural activities. In terms of objectives 4, the following outcomes were generated: (a) preliminary results indicating that the rate of climate change impacts the social resilience of island nations in the Caribbean Ocean; (b) results indicate that there is a causal effect between environmental innovation and environmental performance of manufacturing industries in the U.S. This indicates the environmental policy is effective in reducing toxic air pollution through the use of green technologies.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
132	Weather and Climate

Outcome #5

1. Outcome Measures

To improve regional-scale water resource management using weather and climate forecast information

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The economic and social development of the southeast United States over the past several decades has been fueled by its climate and abundant water resources. Increased population, rapid urban development, and large agricultural water demands have led to conflicts between water users and the need to protect natural systems. Management strategies and cultural practices have a major impact on the demand on, and the availability and quality of, water resources. Improved management of water supplies, reduction in non-essential/discretional outdoor water use, reduction of the use of potable water for non-potable applications, and the

What has been done

) Application and evaluation of climate and weather forecasts in water resource management. Existing forecast products such as 1 to 2-week reforecasts (Hamill et al., 2006a; Hamill et al., 2006b), monthly and seasonal outlook forecasts issued by the Climate Prediction Center and International Research Institute for Climate and Society (Barnston et al., 1999; Mason et al., 1999), and seasonal forecasts based on the phase of the El Nino-Southern Oscillation (e.g. Richey et al., 1989) will be evaluated for their potential to improve hydrologic forecasts for operational decision making and long-term planning by water resource managers. 2) Design, evaluation, and simulation of strategies for reducing outdoor water use. A variety of potential strategies are available that can reduce use of potable water for landscape irrigation, including (but not limited to): alternate landscape selection, water reuse, rainwater harvesting, etc. However, the efficacy of some techniques is not well understood and detailed design techniques are sometimes lacking. For example, rainwater harvesting (cisterns) for outdoor landscape irrigation is a technique that is gaining popularity nationwide. However, only basic guidelines are currently available for sizing cisterns in Florida (Bucklin, 1993). Detailed sizing for reliable use of a cistern for outdoor irrigation should account for within-month and year-to-year variability of rainfall that could be captured. This information could be used to design/select a cistern of the correct size while also including the reliability of the system put in place (e.g. based on historical rainfall, how many years might a cistern of a particular size fail to provide adequate water at the right time). 3) Field evaluation, documentation, and modeling of techniques for reducing the impact of urban landscapes on water quality. Numerous strategies show potential in minimizing water quality impacts of urban landscapes, including landscape selection, irrigation strategies and controllers, and clustering strategies to reduce the fertilized "footprint" of a new or retrofitted development. As with techniques for reducing outdoor water use, the efficacy of strategies to minimize water quality impacts of urban landscapes are not well documented. These techniques will be evaluated using: a) plot experiments where the effect of a given technique can be observed in a relatively controlled setting; b) landscape/watershed-scale experiments where the

integrated response of a given technique that is implemented in all or part of a neighborhood or watershed can be documented as well as its relative importance compared to uncontrolled factors (can we see a response of implementing a given practice on several homes on the pollutant load from the entire neighborhood); and c) simulation modeling to evaluate current understanding of pollutant cycling and transport at both the plot and landscape/watershed scale and to integrate these results into new or existing models that are used by scientists, engineers, and planners.

Results

This project produced both changes in knowledge and changes in action. Knowledge of Florida Department of Environmental Protection (FDEP) personnel was improved on the topic of safe land application of reclaimed water. Actions of FDEP personnel occurred as the product of this increase in knowledge and the production of a spreadsheet tool for use by FDEP personnel (http://www.dep.state.fl.us/water/reuse/landap2010.htm). Knowledge was improved by Florida extension personnel and stakeholders in the Apalachicola-Chattahoochee-Flint River basin in Alabama, Georgia, and Florida on the impact of seasonal climate on regional drought.

4. Associated Knowledge Areas

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

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

The weak economy and reduction of funding in the state continues to impact research. Also, weather conditions common to the tropics including hurricanes, weather extremes from drought to flooding have impacted Florida over the past year.

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

Evaluation Results

Florida is carrying out a multitude of projects related to climate. Because of the tropical climate in Florida that increase problems with water use, pests and stress on both animals and plants Florida has long been engaged in programs that relate to climate and climate change. An example is in the areas of citrus and stone fruit where Florida researchers are looking for new cultivars--new citrus cultivars that can withstand colder weather and stone fruit that require lower chill factors. Florida also is a major research center for many factors related to the climate change theory.

Key Items of Evaluation

Climate varies considerable from year to year and this variability has major impacts on agricultural production. Scientists now understand sources of some of the year to year differences in rainfall and now have methods to forecast climate several months in advance. A majority of crop failures in the USA are associated with either drought conditions or excess rainfall. If such conditions could be anticipated ahead of time, farmers may be able to adjust practices to reduce risks to losses or take advantage of anticipated favorable conditions. However, the forecasts can potentially reduce but not eliminate risks associated with climate variability. The problem is that incorrect use of climate forecasts may increase risks. This research is designed to understand climate forecasts and how they can be used safely to benefit farmers in Florida. The overall purpose of this project is to investigate interactions of climate, crops, and management practices and methods for using climate forecasts for decision support in Florida. Specific objectives are: 1. Develop methods for forecasting agricultural responses to annual climate variability and for quantifying the uncertainties associated with forecasts 2. Identify agricultural management options that reduce risks associated with climate variability for major cropping systems in Florida 3. Develop methods for developing climate and weather information for agricultural system decision support to reduce risks.

V(A). Planned Program (Summary)

Program # 20

1. Name of the Planned Program

Sustainable Energy

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	10%	10%	0%	
202	Plant Genetic Resources	10%	10%	0%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	10%	10%	0%	
204	Plant Product Quality and Utility (Preharvest)	20%	20%	0%	
205	Plant Management Systems	20%	20%	0%	
206	Basic Plant Biology	10%	10%	0%	
511	New and Improved Non-Food Products and Processes	20%	20%	0%	
	Total	100%	100%	0%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Actual	2.3	1.0	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**
24262	67196	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
24262	67196	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

A new extension program on bioenergy was initiated in 2008 in response to increasing demand for information on biofuels. The US Energy Independence and Security Act of 2007 sets a goal of 36 billion gallons/year of biofuel products by 2022. Florida is uniquely positioned to assist in meeting this challenge due to its sub-tropical climate leading to high primary productivity combined with a mature industry in C4 grass (sugarcane) cultivation and harvest. However there are obstacles to adoption including lack of appropriate biofuel feedstock germplasm for nutrient-poor sandy soils. Biofuels have the potential to become a major new agricultural industry in Florida, as 5 processing plants are planned for the Lake Okeechobee area alone. However the success of this industry will depend on the economic and environmental sustainability of year-round feedstock production. To solve this problem Florida Extension is providing contribute to the goal of increased energy independence through educational programs that bring about change in the production and development of biomass used for biofuels, the designing of optimum forest products and crops for bioenergy production and the increased production of value-added bio-based industrial products.

2. Brief description of the target audience

Agricultural industry
farmers and producers
Forest industry

V(E). Planned Program (Outputs)

1. Standard output measures

2010	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: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	25	0	25

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 bio-energy--Sustaining and fueling Florida
2	Change in behavior in bio-energy--Sustaining and fueling Florida
3	Change in condition in bioenergy--Sustaining and fueling Florida
4	Change in knowledge related to the use of plant and vegetable oils for the development of bio-energy

Outcome #1

1. Outcome Measures

Change in Knowledge bio-energy--Sustaining and fueling Florida

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Energy canes are crosses of commercial sugarcane with Saccharum spontaneum that produce clones with high fiber, ratooning ability, cold tolerance and disease resistance. Energy canes have high biomass potential and are potential feedstock materials for cellulosic ethanol production. High-yielding energy canes need to be developed that are agro-ecologically suitable for Florida sandy soils. In addition energy canes need to be compared to other biofuel feedstocks such as elephantgrass and sweet sorghum in terms of biomass yield, fiber content, water and nutrient use, and invasive potential to determine their suitability as feedstocks for a new Florida biofuels industry.

What has been done
?Our objective was to extend high-yielding, disease resistant energycane clones adapted to FL climate and soils to biofuel producers.
In March, 2009 Florida faculty members presented a seminar on the production of sugarcane for ethanol to 150 growers in Highlands County, Florida. Based on this presentation faculty planted demonstration plots of sugarcane, energy cane and sweet sorghum with a UF/IFAS Extension Agent in one county.

Faculty initiated a new joint UF/USDA energy cane breeding program in 2008. From 2008-2010 they established research and demonstration plots of new energy cane clones at Tecan, Townsite, Lykes Bros. and Citra sandland locations. Several on-farm field days have been conducted at the Tecan and Citra location in 2009 and 2010 involving both targeted (British Petroleum and Vercipia at Tecan) and wide audiences (2010 Citra biofuel field day). At these field days faculty were able to demonstrate that we had new high-yielding, disease-resistant energy cane clones.

In September, 2010 faculty gave an invited presentation entitled ?UF/IFAS research direction in energycane and biofuels? to the American Society of Sugar Cane Technologists at EREC. More than 100 growers were present at this meeting, including representatives of British Petroleum.

Results

While the biofuel extension program is relatively new, we have already had promising feedback from British Petroleum on their interest in using the new energy cane clones developed by UF and USDA. The BP cellulosic ethanol plant at the Lykes Bros. facility in Highland County requires 25,000 acres of energycane feedstock, and BP was planning on using released energycane clone L 79-1002 from Louisiana as the feedstock source. However after seeing the smut susceptibity of L 79-1002, and smut resistance and high yields of our new clones in our field trials and presentations, BP has decided to abandon L 79-1002 and negotiated a material transfer agreement to multiply and test the UF/USDA energycane clones at Lykes Bros. and elsewhere. In November, 2010 BP planted > 30 acres of the UF/USDA clones for evaluation at Lykes Bros. One oil company is planning on growing 25,000 acres of cellulosic feedstock in one Florida county. If that facility succeeds their plan is to expand their cellulosic ethanol production to other locations in N. Florida, LA, TX and throughout the SE USA.

4. Associated Knowledge Areas

KA Code	Knowledge Area
201	Plant Genome, Genetics, and Genetic Mechanisms
511	New and Improved Non-Food Products and Processes

Outcome #2

1. Outcome Measures

Change in behavior in bio-energy--Sustaining and fueling Florida

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Change in condition in bioenergy--Sustaining and fueling Florida

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

Change in knowledge related to the use of plant and vegetable oils for the development of bio-energy

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
FAMU: Bio-energy from plant and vegetable oils are an important part of the energy mix for sustainable energy sources of the future. Producing bio-energy from agricultural crops grown by farmers is one way to reduce dependency on fossil fuel and thereby reduce the anthropogenic emissions of greenhouse gases from fossil fuels. On-farm production and processing of oilseed plants contribute to a less toxic environment and environment-friendly bio-energy from value-added food grade vegetable oil. A sustainable production of bio-energy from agricultural crops is important for the country?s future, its energy stability, and the protection of its communities? public health and environment.

What has been done
: The FAMU Whole Farm Sustainable Bio-fuels Demonstration Project began in 2006 when the first hands-on Using Alternative Fuels Workshop was held on an organic methods farm. Alternative energy capacity building/hands-on sessions addressing utilization of waste vegetable oil to produce bio-diesel have been provided from beginning to advance levels. The project serves as a model for sustainable small farm bio-energy production for the region. Bio-diesel made on-farm provides bio-energy for all farm equipment, mowers, and farm vehicles. Organic methods farms provide a uniquely sustainable farmscape and are beneficial to environment and community.

Results
Over three hundred people have participated in the bio-energy capacity building sessions held on-organic farm. Students interested in green energy have also participated in the sessions. Sustainable living sessions, learning farm tours, and hands-on bio-energy workshops are on-going.
Integrating a new sustainable energy pathway - growing oilseed crops to produce bio-energy: An innovative small farm strategy for developing bio-energy is to utilize farm grown oilseed crops to produce energy and electricity. In February 2010 we focused on enhancing sustainability by growing oilseed crops and pressing to make bio-energy an alternative energy source for the whole farm including farm equipment, farm house, farm vehicle, etc. The concept of integrating oilseed crops to meet total on-farm energy requirements (fuel for cars, trucks, tractors, and farm house, etc.) can be easily scaled up or down to meet residential sustainable community energy requirements. This viable alternative energy pathway when added to the mix is expected to provide a sustainable option that will impact how we relate to climate variability and innovative

farming communities. Students will assist with project implementation, monitoring and sustainability workshops. Capacity building workshops will demonstrate and provide training. A paper addressing the potential global impact of this sustainable small farm project was accepted for presentation at the 2010 ISEIS Conference, Beijing, China.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
206	Basic Plant Biology
511	New and Improved Non-Food Products and Processes

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

The weak economy and reduction of funding through appropriation changes, competing public priorities and programmatic challenges continue to impact programs in Florida. Also, weather conditions common to the tropics including hurricanes, weather extremes from drought to flooding have impacted Florida over the past year.

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

Evaluation Results

Florida Extension is committed to supporting science-based knowledge that contributes to the development of biomass used for biofuels, the optimum use of forest products and the development of biomass crops that can take advanatage of growing crops on marginal land and in cases when the production of biomass crops does not divert from food crops to energy use which could create a new area of problems.

Key Items of Evaluation

Florida Extension has had had promising feedback from British Petroleum on their interest in using the new energy cane clones developed by UF and USDA. The BP cellulosic ethanol plant at the Lykes Bros. facility in Highland County requires 25,000 acres of energycane feedstock, and BP was planning on using released energycane clone L 79-1002

from Louisiana as the feedstock source. However after seeing the smut susceptibity of L 79-1002, and smut resistance and high yields of our new clones in our field trials and presentations, BP has decided to abandon L 79-1002 and negotiated a material transfer agreement to multiply and test the UF/USDA energycane clones at Lykes Bros. and elsewhere. In November, 2010 BP planted > 30 acres of the UF/USDA clones for evaluation at Lykes Bros. BP is planning on growing 25,000 acres of cellulosic feedstock in Highlands County. If that facility succeeds their plan is to expand their cellulosic ethanol production to other locations in N. Florida, LA, TX and throughout the SE USA.

the first bioenergy grass field day was held at the Plant Science Research and Education Unit at Citra, FL. Approximately 100 participants attended the field day to see ongoing research, to learn agronomic practices for production of bioenergy grasses, and to understand potential invasiveness of various bioenergy species including elephantgrass. A poster was developed that summarized the differences among cultivated and weed-type elephantgrasses

V(A). Planned Program (Summary)

Program # 21

1. Name of the Planned Program

Sustainable energy--research

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%	10%	
201	Plant Genome, Genetics, and Genetic Mechanisms	0%	0%	10%	
202	Plant Genetic Resources	0%	0%	20%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%	0%	10%	
204	Plant Product Quality and Utility (Preharvest)	0%	0%	10%	
205	Plant Management Systems	0%	0%	10%	
206	Basic Plant Biology	0%	0%	10%	
511	New and Improved Non-Food Products and Processes	0%	0%	20%	
	Total	0%	0%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Actual	0.0	0.0	29.2	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	792283	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	792283	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	792283	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Sustainable energy inlcudes projects that lead to energy independence by providing science that can be used to create biofuels, design optimum forest products and crops for bioenergy production, and also to produce bio-based industrial products.

2. Brief description of the target audience

Ag Industry
General public
bioenergy industry
government officials

V(E). Planned Program (Outputs)

1. Standard output measures

2010	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: 2010
Actual: 19

Patents listed
Improved Klebsiella Oxytoca for Ethanol Production
Embedded RFID Tag in Injection Molded Package Using In-Mold Labeling Process
Ethanol Production in Minimal Medium
Method to Design and Utilize Hybrid Peptides Having Antimicrobial Activity
Succinate and Malate Production by Engineered E. Coli
Biocatalyst for Complete Conversion of Hemicellulose Hydrolysates to Biobased Products
Transhydrogenase Genes Increase Furfural Tolerance
Material and Methods to Regulate Carbon Allocation and Biomass Growth
Transhydrogenase Genes Increase Furfural Tolerance
Optimizing Cellulase Usage for Improved Mixing and Flow
Furfural Resistant Mutant
Biomass Conversion Using Recombinant Termite Ligno-Cellulases
Leaf Area Regulator to Increase Plant Photosynthetic Capacity and Biomass
Transhydrogenase Genes Increase Furfural Tolerance
Furfural Resistant Mutant
Engineering the Pathway for Succinate Production
Escherichia coli B Engineered for Lactic Acid Production (DIV)
Isolation and Targeted Suppression of Lignin Biosyntetic Genes from Sugarcane

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	20	20

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	Reduce the cost of harvesting and handling and storing biomass
2	To identify sorgum germplasm for potential bioenergy crop in Florida
3	Identify plant species that are viable candidates for bioenergy systems
4	Identify and characterize limiting genetic factors for improving biomass/bioenergy grasses, cerals and turf.
5	To assess the supply of biofuel feed stock available for conversion in biofuel in the southeastern US and where to establish biofuel plants.

Outcome #1

1. Outcome Measures

Reduce the cost of harvesting and handling and storing biomass

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Significant amount of lignocellulosic biomass accumulates as agricultural waste. In addition, biomass crops can be cultivated for fermentation to chemicals and fuels. This Multistate project attempts to develop both biological and engineering technologies to convert agricultural waste, such as sugarcane bagasse, corn stover, etc., and selected woody biomass into fuels, such as ethanol and various chemicals.

What has been done
We have genetically modified Escherichia coli and other bacteria to produce ethanol from glucose, xylose, and other sugars present in lignocellulosic biomass. These genetic and metabolic engineering studies are extended for cost-effective conversion of biomass to various fuels and chemicals to minimize the need for imported petroleum.

Results
Our research group continues to make genetic improvements in biocatalysts for the conversion of lignocellulose-derived sugars into ethanol, lactic acid, succinate, and other products which replace petroleum. BP has announced the construction of a full scale lignocellulose to ethanol plant in Florida using our licensed technology. Myriant Technologies has announced the construction of the world's largest succinate plant (bioplastics) in Louisiana using our licensed technology. Lactic acid commercialization by Purac continues to expand with production facilities in Spain. Fundamental research at UF continues to identify and solve problems associated with the bioconversion of woody biomass, providing new opportunities in this area. With the completion of the Biofuels Pilot Plant on campus, additional research has made significant progress in reducing the complexity and increasing the efficiency of lignocellulose-based bioprocesses. For ethanol, conversions yielding over 80 gal ethanol per ton of bagasse have been achieved. Engineering design has been completed and construction is underway for a new

state funded research facility, the Stan Mayfield Biorefinery Pilot Plant. This facility will be used to further develop an integrated process at a scale of 3-5 tons of biomass per day.

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)
206	Basic Plant Biology
511	New and Improved Non-Food Products and Processes

Outcome #2

1. Outcome Measures

To identify sorgum germplasm for potential bioenergy crop in Florida

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	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
A collection of publicly available sweet sorghum accessions will be planted at the UF Plant Science Research and Education Unit in Citra, FL, evaluate for photoperiod adaptation, biomass yield, juice yield, sugar content of the juice, and disease resistance (anthracnose, ergot). The best lines will be evaluated at two other locations in Florida. Objective 5. Crosses between the most promising lines will be made to generate breeding populations from which selections can be made for superior performance. Selections will be tested in different locations and advanced to

inbred lines.

Results

Data analysis led to the identification of four distinct groups of sorghum genotypes: a. sorghums that are able to withstand drought and that are conservative with water when it is available (i.e. use the water for vegetative growth). b. Sorghums that are able to withstand drought and that transpire a lot of water when it is available; c. Drought-sensitive sorghums that use water for biomass production when the water is available; d. Drought-sensitive sorghums that transpire when water is available. We have selected individual sorghum genotypes as the basis for mapping populations to identify genomic regions associated with water use and drought tolerance. Two grant proposals were submitted in 2010 that build on the results obtained from this HATCH project.

4. Associated Knowledge Areas

KA Code	Knowledge Area
201	Plant Genome, Genetics, and Genetic Mechanisms
202	Plant Genetic Resources
205	Plant Management Systems
206	Basic Plant Biology
511	New and Improved Non-Food Products and Processes

Outcome #3

1. Outcome Measures

Identify plant species that are viable candidates for bioenergy systems

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The case for bioenergy research is compelling for economic, national security, and environmental conservation reasons. Florida is well positioned to capitalize on the national need for bioenergy

crops. The Florida climate conveys unique advantages for bioenergy crop production including a long growing season, generally high rainfall during the warm season, and high temperatures to optimize plant growth. In addition, Florida farmers have a major need for alternative crops and non-traditional markets. Many of these conditions also apply regionally throughout the Southeast. This project will bring together public, private, and commercial entities to develop new technology to address the need for new energy sources.

What has been done

Activities include several research projects for which data were collected during the reporting period. Projects included: 1) evaluation of planting date, cultivar, and location effects on sweet sorghum yield, sugar concentration, and fiber component concentrations; 2) evaluation of yield and chemical composition of six perennial grasses with potential for use as bioenergy crops; 3) evaluation of the use of municipal biosolids as a nutrient source for production of bioenergy crops; 4) determining the effect of harvest frequency on yield, yield distribution, and persistence of potential bioenergy crops; 5) evaluation of harvest management on N use efficiency and nutrient recycling in bioenergy crops; 6) measurement of the effect of frost and time since a frost event on dry matter yield, concentration, and nutrient composition of bioenergy crops. A Perennial Grass Bioenergy Field Day was held on July 15, 2010 at the Plant Science Research and Education Unit to show producers, industry representatives, extension personnel, and other scientists the ongoing research and results to date. One hundred persons attended

Results

Research to date has demonstrated that the two most promising bioenergy species for Florida are elephantgrass and energycane. Our statewide programs have interacted with producers and industry partners to provide planting material of released cultivars and provide information on most effective management programs. Participants who came to the bioenergy field were provided management information for the various species. Results of our studies follow. Three varieties of sweet sorghum, Dale (early maturity), Topper 76-6 (medium-late maturity) and M81-E (late maturity), were grown at the three sites in Florida.

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
206	Basic Plant Biology
511	New and Improved Non-Food Products and Processes

Outcome #4

1. Outcome Measures

Identify and characterize limiting genetic factors for improving biomass/bioenergy grasses, cerals and turf.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
This research program will identify and characterize limiting genetic factors for improvement of cereals, turf and biomass/bioenergy grasses. through genetic engineering or plant breeding. The improvement of environmental and biotic stress tolerance of these crops, will enhance their productivity and persistence and will result in a more efficient use of natural resources. Alternatively, quality improvement in grasses and cereals that are well adapted to stress can significantly increase their value. Biomass grasses represent a promising feedstock to produce low-cost ethanol, their improvement using biotechnological approaches will reduce costs associated with biomass conversion to fuel. Risk assessment and development of risk management strategies are essential components of this molecular grass improvement program.

What has been done
This research program integrates advanced genetic transformation technology and functional genomics to identify, isolate and engineer limiting factors for molecular improvement of cereals, turf and biomass/bioenergy grasses. Results will be analyzed with molecular, biochemical and physiological techniques under controlled environment and field conditions (monitored and approved by USDA-Aphis). Results will be presented in form of peer reviewed journal publications, posters and oral presentations at scientific conferences as well as in formal courses (e.g. AGR 5303 Molecular genetics for crop improvement).

Results
(1) Improving the turf quality of bahiagrass, while maintaining its persistence will increase the popularity of this low input turfgrass while maximizing positive impacts on natural resources. (2) Sterile, interspecific hybrids of the biofuel and forage crop napiergrass and pearl millet will increase biosafety of feedstock production by eliminating the rapid spread of this potentially invasive species through pollen or wind dispersed seeds. (3) Chloroplast engineering can support high level expression of cell wall degrading enzymes. We demonstrate that transplastomic plants allow efficient production of enzymes with superior functionality for biofuel production. Candidate expression cassettes like the GH10 xylanase that are highly expressed in tobacco without deleterious effects on the plants are then subcloned to support integration into the specific grass plastome by homologous recombination. (4) Down-regulation of lignin biosynthesis pathway enzymes and in planta expression of cell wall degrading enzymes are promising strategies to increase the efficiency of biofuel production from the abundant ligno-cellulosic sugarcane residues, leaf litter and bagasse. Transgenic sugarcane lines with RNAi suppression of the lignin

biosynthetic genes 4CL and COMT were generated. Subsequent experiments will identify the the effects on lignin quantity and composition. Findings should allow to correlate altered lignin in sugarcane with fermentable sugar yields and or reduced pre-treatment requirements of the ligno-cellulosic sugarcane biomass as well as plant performance. Xylan is after cellulose, the most abundant polysaccharide in sugarcane residues and must be hydrolyzed to its component sugars before fermentation to ethanol. Endoxylanases are the main enzymes involved in xylan hydrolysis. Expression of the GH10 xylanase in sugarcane sucessfully supported hydrolysis of xylan

4. Associated Knowledge Areas

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

Outcome #5

1. Outcome Measures

To assess the supply of biofuel feed stock available for conversion in biofuel in the southeastern US and where to establish biofuel plants.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The purpose of this study is to analyze the costs associated with the construction of cellulosic ethanol plants along the state. Feedstock available in Florida are sugar cane baggase, wood residue, and yard waste from municipal solid waste (MSW). Risk based models will be constructed to assess the feasibility of plants using biomass for conversion into ethanol. Net present value is the factor that will determined ultimately the economic success of this plant in the state of Florida. Relatively little research has been done on the economic feasibility of cellulosic ethanol plants that includes the stochastic risk associated with the biomass supply and the output values for the ethanol produced. Ethanol plant level risk models, using plant construction costs and budgets for converting biomass into ethanol, will provide a dollar measurement of the projected costs and returns to building a plant for this purpose. The model will also allow for

analysis of policy related to ethanol production and the risks associated with output prices.

What has been done

Assess the supply of biofuel feed stock available for conversion into biofuel in the southeastern U.S. and to assess the feasibility of locating biomass conversion plants where supply of feedstock is highest. Specific objectives include: 1)survey the literature and selected waste management companies to determine the amount of biomass that could be diverted to a biofuel conversion facility; 2)determine the potential ethanol yield and total production capacity for feedstock identified in selected locations; 3)assess the plant costs and operating capacities for facilities that can convert feedstock into biofuel and; 4)develop a plant location model to identify efficient technologies and locations for biofuel plants.

Results

The results of this research contrbuted to identifying critical economic factors affecting the success of a biomass conversion plant for agricultural residue, yard waste and wood waste. The results were published in a book chapter and were presented at 2 conferences realtng to renewable energy.

4. Associated Knowledge Areas

KA Code	Knowledge Area
511	New and Improved Non-Food Products and Processes

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

The weak economy and reduction of funding in the state continues to impact research. Also, weather conditions common to the tropics including hurricanes, weather extremes from drought to flooding have impacted Florida over the past year.

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

Evaluation Results

The University of Florida was awarded the nation's 5-millionth patent in a special ceremony at the U.S. Commerce Department. It recognized groundbreaking scientific work

by Lonnie Ingram of the University of Florida Microbiology Department. Dr. Ingram and his team worked with a bacteria that could convert plant waste into ethanol, a cleaner-burning substitute for gasoline. By genetically modifying an E. coli bacteria in the lab, Ingram's team created an organism capable of converting all sugars in plant cells into fuel ethanol. The technology made it possible to use almost any organic biomass - from corn stalks and straw to yard trimmings and forestry wastes - to make fuel. Florida continues to build on these studies related to bio-energy and the production of new forms of fuel and to design and to produce value-based industrial products.

Key Items of Evaluation

The University of Florida was awarded the nation's 5-millionth patent in a special ceremony at the U.S. Commerce Department. It recognized groundbreaking scientific work by Lonnie Ingram of the University of Florida Microbiology Department. Dr. Ingram and his team worked with a bacteria that could convert plant waste into ethanol, a cleaner-burning substitute for gasoline. By genetically modifying an E. coli bacteria in the lab, Ingram's team created an organism capable of converting all sugars in plant cells into fuel ethanol. The technology made it possible to use almost any organic biomass - from corn stalks and straw to yard trimmings and forestry wastes - to make fuel. The purpose of this study is to analyze the costs associated with the construction of cellulosic ethanol plants along the state. Feedstock available in Florida are sugar cane baggase, wood residue, and yard waste from municipal solid waste (MSW). Risk based models will be constructed to assess the feasibility of plants using biomass for conversion into ethanol.

Research has also been done in the area of Net present value that will determined ultimately the economic success of this plant in the state of Florida. Relatively little research had been done on the economic feasibility of cellulosic ethanol plants that includes the stochastic risk associated with the biomass supply and the output values for the ethanol produced. Ethanol plant level risk models, using plant construction costs and budgets for converting biomass into ethanol, which can provide a dollar measurement of the projected costs and returns to building a plant for this purpose. A model has been developed that contrbutes to identifying critical economic factors affecting the success of a biomass conversion plant for agricultural residue, yard waste and wood waste.

V(A). Planned Program (Summary)

Program # 22

1. Name of the Planned Program

Childhood Obesity

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	20%	20%	0%	
702	Requirements and Function of Nutrients and Other Food Components	20%	20%	0%	
703	Nutrition Education and Behavior	20%	20%	0%	
704	Nutrition and Hunger in the Population	20%	20%	0%	
723	Hazards to Human Health and Safety	20%	20%	0%	
	Total	100%	100%	0%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Actual	14.2	2.0	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
151524	134392	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
151524	134392	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

Activities within this program include educational programs that support research-based knowledge that effectively measures the awareness and behavioral changes that allow individuals and families to make informed decisions that will reduce childhood obesity and improve the health of children through a better understanding of the nutrient composition of food, the understanding of the requirements and functions of nutrients and other food components, the understanding of nutrition behavior and changing behavior. This program also explains how nutrition can be used to reduce hunger as well as the hazards of childhood obesity to human health and safety.

2. Brief description of the target audience

The food industry
families
individuals
children
At-risk persons including children who are obese
Family members who have a personal history of obesity
Children and families who have a personal history of heart disease or diabetes
local, state and federal agencies
non-profit agencies working on childhood obesity
schools and universities
businesses
faith-based organizations

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	208049	0	0	0

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

Patent Applications Submitted

Year: 2010
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	29	0	29

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 the inclusion of healthy foods in schools that promote healthy eating habits
2	By increasing behavior change in eating habits reduce weight in an effort to improve overall health
3	Increase the number of public school teachers in the Family nutrition program to reduce obesity in children.

Outcome #1

1. Outcome Measures

Increase the inclusion of healthy foods in schools that promote healthy eating habits

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
CHILD OBESITY ? FARM TO SCHOOL
FAMU: Both schools and small farmers benefit from participation in the Farm to School programs. Schools provide children fresh, tasty, nutritious produce, while small farmers acquire new market opportunities.

What has been done
The Farm to School Program, a public-private collaboration between FAMU and New North Florida Cooperative, is designed to encourage school district participation allowing schools to have access to fresh, locally/regionally fruits and vegetables produced by small-scale farmers, while guiding school feeding programs toward promoting healthy eating habits among children.

Results
30 school nutrition personnel from 22 Florida school districts increased knowledge developing Farm to School efforts and procuring produce from small farmers. 13 Florida school districts, serving 300,000 school children, improved nutritional value of school meals due to incorporating local and regional fresh produce. Schools purchased approximately 100,000 lbs. of fresh produce grown by small and medium-sized farmers. Additionally, the accomplishments and impact of FAMU/New North Florida Cooperative Farm to School activities over the past few years was used to demonstrate effectiveness and played a major role in providing substantive evidence that subsequently led to the signing of Farm to School Funding into law.

Thirty-eight (38) specialty crop producers received training in alternative marketing opportunities for at FAMU Farm Fest activity.

Fifty (50) people participated in food safety and liability insurance training conducted in collaboration with the Community Food Security Coalition

Fifty-five (55) adult and youth farmers received training in leafy greens and green bean crop production and management, harvesting and post harvest handling, value-added processing and packaging, market development and distribution logistics through on-farm and on-site specialty crop production demonstrations.

Established New & Beginning Farmer Training Program in which forty-three (43) intensive, hands-on training sessions were conducted with adult and youth beginning farmers.

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
723	Hazards to Human Health and Safety

Outcome #2

1. Outcome Measures

By increasing behavior change in eating habits reduce weight in an effort to improve overall health

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Floridians spend approximately $48 billion on health care annually. These health care costs can be reduced by Floridians learning to adopt healthier lifestyles. By just reducing weight, we may be able to reduce the incidence of a number of weight‐related diseases, thus reducing the money spent on health expenditures. Weight reduction as an end result doesn?t take into account the additional benefits such as improved mental disposition, increased energy and general quality of life that also occurs as a result of the nutrition and activity behaviors that are adopted.
For every person who reduces his/her need for drugs and other arteryclearing

procedures, or surgery, an estimated $10,930 is saved (FDA, 1996).

What has been done

In one Northeastern county in Florida an agent worked with rural participantes in a program called Rural Lite. For our Rural Lite participants, the average weight at baseline was 104 kg and decreased to about 95 kg by month six. This represents a 9 kg (roughly equivalent to 20 lbs.) weight loss. A five percent reduction would be 5.2 kg. Participants in Suwannee started out at a slightly higher weight; however the amount lost was similar to all participants in other counties in the same Wave. Blood pressure of Wave One‐ Rural Lite participants decreased over time, going from 124/79 mmHg at baseline to 118/74 mmHg at month six. Blood lipids also decreased. The average triglycerides at baseline was 182 mg/dl and decrease to about 144 mg/dl at month six. This represents a 38 mg/dl reduction. LDL‐cholesterol was lowered from 123 mg/dl to 117 mg/dl, a 6 mg/dl reduction. CRP also decreased over time, going from 5.6 mg/L at baseline to 4.2 mg/L at month six; a 1.4 mg/L reduction. All of these measures significantly decreased from baseline to month six. Approximately 90% of the Wave 1 Rural Lite participants completed th e program through month six (this is the most current data we have available to date.) For Wave One, 199 participants were randomized. At six months we received data on 181 participants.

Results

Rural Lite (Wave Two) Participant ?P? stopped by 12‐10‐10 to say thanks for ?the best Christmas present ever. Last year she wore a size 18 and this year it was an 8.?

4. Associated Knowledge Areas

KA Code	Knowledge Area
702	Requirements and Function of Nutrients and Other Food Components
703	Nutrition Education and Behavior
723	Hazards to Human Health and Safety

Outcome #3

1. Outcome Measures

Increase the number of public school teachers in the Family nutrition program to reduce obesity in children.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual

2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Children can improve their eating habits and decrease weight gain when they are properly training in the importance of nutrtion and exercise. To do this public school teachers must be trained.

What has been done

The Family Nutrition Program started in Lake County in February 2010. By the end of the school year in June 2010, two program assistants were teaching in six elementary schools with 1569 kindergarten through second grade students. The response from teachers and school administrators was very positive. In three of the schools, all K‐2 teachers participated. In the other three schools due to either lack of FNP personnel or teacher participation, only a portion of the K to 2 classes were included in the program.

Results

When the school‐based education program resumed in August 2010, the schools with partial participation now have close to 100% participation from K ‐ 2 teachers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
702	Requirements and Function of Nutrients and Other Food Components
703	Nutrition Education and Behavior
704	Nutrition and Hunger in the Population
723	Hazards to Human Health and Safety

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Florida is presently being affected by the economic issues plaguing the world. There are also public policy changes, governemtn regulations and reduced appropriations

affecting Extension and the land-grant university as a whole. There are competing programmatic challenges and the general public tired from years of stress and uncertainity are also reacting negatively as they try to save their jobs and homes. Florida has also been told to expect another 3 to 6% reduction in legislative funds and as counties are also being cut back by the state it is expected that IFAS and especially Extension will be seriously impacted.

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

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 23

1. Name of the Planned Program

childhood obesity--research

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%	25%	
702	Requirements and Function of Nutrients and Other Food Components	0%	0%	15%	
703	Nutrition Education and Behavior	0%	0%	15%	
704	Nutrition and Hunger in the Population	0%	0%	15%	
723	Hazards to Human Health and Safety	0%	0%	20%	
724	Healthy Lifestyle	0%	0%	10%	
	Total	0%	0%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Actual	0.0	0.0	2.4	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	121007	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	121007	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	121007	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Projects in the area of childhood obesity identify effective, scientific measures that can be used to guide individuals and families in reducing child hood obesity and improve health.

2. Brief description of the target audience

Health care providers
schools
families
individuals

V(E). Planned Program (Outputs)

1. Standard output measures

2010	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: 2010
Actual: 2

Patents listed
Lactobacillus Supplement to Prevent Diabetes Type 1
Lactobacillus Supplement to Prevent Diabetes Type 1

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	10	10

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 and implement a clinically effective and cost efficient lifestyle treatment for obesity in the rural communities
2	Develop a CBPR-based model that can be used to target populations to identify and prioritize problems of young people related to weight that affect quality of life and health
3	Develop and implement a clinical effective and cost efficient lifestyle treatment for obesity for a rural community.

Outcome #1

1. Outcome Measures

Develop and implement a clinically effective and cost efficient lifestyle treatment for obesity in the rural communities

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The prevalence of overweight and obesity in both adults and children in the United States is a leading public health concern. Over sixty-six percent of US adults are either overweight or obese with 32.2% falling into the obese category. Many chronic health conditions such as high blood pressure, type 2 diabetes, heart disease, stroke, gallbladder disease, arthritis, sleep apnea, and some types of cancers are strongly related to increasing body weight. A combination of environmental factors appears to be responsible for this sharp rise in obesity including changes in both physical activity and nutrition habits. Because the rise in obesity is not due to a single cause, effective weight management strategies must also take a broad approach targeting both physical activity and nutrition interventions through creative low-cost methods. Thus, our goal is to cast a wider net into society to combat obesity and improve health for all peoples, not just those with access to quality health care and associated resources. Specifically, this set of obesity related projects has 4 goals: to investigate best methods for long-term weight management support for Floridians in rural areas; improve physical activity and dietary habits of children receiving Medicaid benefits; gain understanding into how children make food choices and how to best communicate sound nutrition information to children; and to study how different dietary fibers affect blood sugar levels.

What has been done

The physical and psychological effects of our nation's current obesity epidemic are well documented. The dramatic rise in obesity is likely due to a combination of environmental factors that have affected both physical activity and dietary patterns. Working with colleagues from various departments at the University of Florida, both within and outside IFAS, our goal is to develop sustainable multifaceted strategies to reduce the rate of obesity and its related diseases. To this end, our objectives include projects aimed at increasing physical activity and improving the dietary behaviors of the citizens of Florida.

Results

Our initial analyses reveal that food quality does impact the intake of certain, but not all foods, indicating that while quality is important, it is not the only factor that effects intake and that other factors such as energy density/volume may also need to be considered when designing meals. We are currently developing and will analyze the price/quality index and make recommendations on the benefits of providing higher quality foods to elders at congregate meal sites. The results of the dietary fiber/glycemic response study will add to a growing body of knowledge evaluating the impact of various types of fiber (not just total amount) on glucose control and satiety. This has potential impacts for both food manufacturers and individuals attempting to manage their glucose levels and body weight. All 3 weight management intervention projects described above have very large potential impacts on the health of our society, particularly those living in rural areas where access to health care is often limited. Each of these projects are multi year interventions and initial analysis of baseline data has just begun.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #2

1. Outcome Measures

Develop a CBPR-based model that can be used to target populations to identify and prioritize problems of young people related to weight that affect quality of life and health

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Risks of cardiovascular disease, hypertension, and type 2 diabetes are exacerbated by excessive weight gain. Development of specific strategies is needed to promote healthful eating among young adults, an age group with high risk of weight gain and unique interests in diet/health issues. To date, few interventions have been designed for obesity prevention among young adults. This multi-state research group is currently designing an intervention to prevent weight gain and promote healthy diet/exercise choices among young adult college students. The experimental intervention will utilize principles of community-based participatory research (CBPR), a

collaborative approach to research that equitably involves & community members, organizational representatives, and researchers in all aspects of the research process'. Outputs: 1) Each state will report frequency of contact with partners, how and when they completed their participatory research training and how they plan to achieve their CBPR objectives . States will communicate through bi-monthly conference calls and will prepare a summary report for the annual NC 219 meeting. 2)Each state will prepare a report identifying the partner(s), frequency of contact with each partner, and perceived problems. Survey data will be evaluated and prioritized by each state/community team. Objectives will be generated for each PRECEDE-PROCEED phase by the state/community teams and consolidated by the NC219 group. States will communicate through bi-monthly conference calls and will prepare a summary report for the annual meeting identifying similarities and differences between states. Publications reporting results of qualitative work on perceived health concerns and quality of life concerns will be prepared and submitted for publication. Publications connecting quality of life, health and educational and environmental needs will be prepared and submitted. 3) The community teams' work will be compiled into one large database. 4) A report will define institutionalization progress and identify future plans Outcomes or projected Impacts: 1)Successful completion of the proposed Multistate Research Fund (MRF) project will have three important immediate impacts: 1) the cadre of researchers and extension educators working on the project will develop skill in using a new and promising research model - - community based participatory research (CBPR), 2) the usefulness of CBPR will be determined with a vulnerable population group and 3) the usefulness of a new approach to preventing weight gain - - the non-calorically restrictive, weight gain prevention intervention - - will be determined with this target audience. 2) If the CBPR research model and/or the non-calorically restrictive, weight gain prevention intervention prove successful with young adult college students, these approaches can be adapted to meet the needs of more difficult to reach and more vulnerable young adult audiences. The results of the proposed MRF project should provide a strong basis from which to compete for further funding.

What has been done

1. Enhance NC219 researchers' skills in participatory research techniques and to build partnerships among researchers, extension and outreach educators, and populations of young adults to develop cooperative intervention programs. 2. Use participatory research techniques to assess, prioritize, and connect: (a) young-adults' quality of life issues and needs (Social Diagnosis); (b) young-adults' perceived health issues, and the behavioral and environmental health determinants (Health, Behavioral and Environmental Diagnosis); (c) young-adults' specific predisposing, reinforcing, and enabling factors determining their health and quality of life (Educational and Ecological Diagnosis). 3. Address needs identified in objective 2 by compiling and evaluating evidence-based methods and material for promoting healthful eating and/or prevention of weight gain (Administrative and Policy Diagnosis). 4. Develop community based applications that can be refined and evaluated in future projects.

Results

As mentioned above every aspect of the online intervention has been cognitively assessed with University of Florida students. First, the website appearance (i.e. colors, text, pictures) were changed and finalized. Lesson content was corrected and tailored to student preferences. Weekly messages designed to reinforce lesson concepts were changed to make them more user friendly with student input. Formative evaluation of the online intervention was performed by each student involved in the pilot study and provided researchers with feedback pertaining to every aspect of the study. All participants indicated they learned something new as a result of the intervention and will use the information learned again. Participants indicated that the online intervention provided good tips on how to make behavioral changes. The website is now ready for use in the spring

2011 intervention. The BECS validation study showed that BECS survey is a good tool to gain insight into health behavior that young adults find important and are willing to improve. Students indicated that the most important factors associated with health included environmental aspects needed to support healthful lifestyles. The resulst from the walkability/bikeability assessment were used to inform a campus-wide health committee on one aspect of physical activity promotion on campus and helped the committee determine priorities for change. Persoanlity emerged as one factor that could contribute to the effectiveness of an intervention. In order to explore this further an NIH R21 on the tailoring weight management interventions based on personality was submitted but funding was not received. We have revised according to comments and resubmitted the proposal.

4. Associated Knowledge Areas

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

Outcome #3

1. Outcome Measures

Develop and implement a clinical effective and cost efficient lifestyle treatment for obesity for a rural community.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The prevalence of overweight and obesity in both adults and children in the United States is a leading public health concern. Over sixty-six percent of US adults are either overweight or obese with 32.2% falling into the obese category. Many chronic health conditions such as high blood pressure, type 2 diabetes, heart disease, stroke, gallbladder disease, arthritis, sleep apnea, and some types of cancers are strongly related to increasing body weight. A combination of environmental factors appears to be responsible for this sharp rise in obesity including changes in both physical activity and nutrition habits. Because the rise in obesity is not due to a single cause, effective weight management strategies must also take a broad approach targeting both physical

activity and nutrition interventions through creative low-cost methods. Thus, our goal is to cast a wider net into society to combat obesity and improve health for all peoples, not just those with access to quality health care and associated resources. Specifically, this set of obesity related projects has 4 goals: to investigate best methods for long-term weight management support for Floridians in rural areas; improve physical activity and dietary habits of children receiving Medicaid benefits; gain understanding into how children make food choices and how to best communicate sound nutrition information to children; and to study how different dietary fibers affect blood sugar levels.

What has been done

The physical and psychological effects of our nation's current obesity epidemic are well documented. The dramatic rise in obesity is likely due to a combination of environmental factors that have affected both physical activity and dietary patterns. Working with colleagues from various departments at the University of Florida, both within and outside IFAS, our goal is to develop sustainable multifaceted strategies to reduce the rate of obesity and its related diseases. To this end, our objectives include projects aimed at increasing physical activity and improving the dietary behaviors of the citizens of Florida.

Results

Our research evaluating the effects of food quality on food intake by elders at congregate meal sites has large potential impacts for both the meal recipients and the FL Dept of Elder Affairs. Our initial analyses reveal that food quality does impact the intake of certain, but not all foods, indicating that while quality is important, it is not the only factor that effects intake and that other factors such as energy density/volume may also need to be considered when designing meals. We are currently developing and will analyze the price/quality index and make recommendations on the benefits of providing higher quality foods to elders at congregate meal sites. The results of the dietary fiber/glycemic response study will add to a growing body of knowledge evaluating the impact of various types of fiber (not just total amount) on glucose control and satiety. This has potential impacts for both food manufacturers and individuals attempting to manage their glucose levels and body weight. All 3 weight management intervention projects described above have very large potential impacts on the health of our society, particularly those living in rural areas where access to health care is often limited. Each of these projects are multi year interventions and initial analysis of baseline data has just begun. We have submitted 3 abstracts to the Society for Behavioral Medicine annual meeting. Two compared self reported physical activity reports from 2 separate questionnaires with objective physical activity data and showed that individuals are poor reporters of their activity levels, particularly in regards to physical activity intensity which has a large impact on daily energy expenditure and thus energy equilibrium. The 3rd abstract reports on the use of a 5 week campaign implemented several months after the initial behavioral intervention. Impacting the weight and health of children has proven to be difficult in other intervention studies and few large scale projects have been reported. The FLIP and E-FLIP projects are targeting two nontraditional and underserved populations - those receiving Medicaid benefits and those living in rural areas. Lastly, the GIS project has potential national impacts as it will provide a tracking and evaluative system not only for RWJF grantees but for researchers, policy makers, and community advocates across the country. The UF Health Behaviors will contribute to our understanding of why self-monitoring is so important for long term weight management and also contribute to a body of collected information on the behaviors of undergraduate students. Weight and weight change in this age group is largely indicative weight patterns later in life. This information will also help us in designing the most appropriate interventions for this age group. Published manuscript on effects of the first year of a 12 year intervention on physical activity and fitness from the Look AHEAD Study.

4. Associated Knowledge Areas

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

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

The weak economy and reduction of funding in the state continues to impact research. Also, weather conditions common to the tropics including hurricanes, weather extremes from drought to flooding have impacted Florida over the past year.

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

Evaluation Results

Florida Extension does a great deal of research in the area of nutrition and especially in areas that could improve health related illness including obesity. They have in the past not done as much specially related to children as the feeling in Florida has been you need to change the habits of the whole family but start with a better understanding of nutrition by the parents. In future we plan to have more research in the area of child obesity.

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 24

1. Name of the Planned Program

Food Safety

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

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890

Actual	16.5	3.0	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**
175786	201588	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
175786	201588	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

Food safety involves programs developed to reduce the incidence of food borne illness and provide a safer food supply by addressing the causes of microbial contamination and antimicrobial resistance, educating the consumer and food safety professionals and developing better food processing technologies.

2. Brief description of the target audience

Restaurant personnel
Post harvest food handlers
home canners
general public
Food service operators
Food handlers (adults, youth)
consumers
volunteers
county faculty

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	416098	0	0	0

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

Patent Applications Submitted

Year: 2010

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	40	0	40

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 food safety through the use acceptable processing of fresh local foods
2	Increase knowledge related to food hygiene and food safety on a global level
3	Families will increase food safety through changing behaviors in low income families related to nutrition
4	Increase behaviors in commercial food services to reduce the incidence of foodborne illenss
5	Increase knowlege that leads to better BMP related to food saftey and foodborne illness through HACCP certification

Outcome #1

1. Outcome Measures

Improve food safety through the use acceptable processing of fresh local foods

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
FAMU Human Nutrition and Food Safety
The Expanded Food and Nutrition Education Program (EFNEP) teach nutrition and food resource management to low-income families and youth. EFNEP assist families in acquiring knowledge, skills, attitudes, and changed behavior necessary to make healthy food choices for the whole family, prepare delicious and safe food, and make money and food stamps go further. As a result of bad economic conditions in the country, the Gulf Oil Spills, and other environmental conditions, more families in the state of Florida qualified under limited resources. According to Florida Department of Consumer Science and Agriculture, over 2,180,787 people (13% of the state population) live in poverty. 38% of deaths are from nutrition related diseases: heart disease, stroke and diabetes. 72% of adults eat less than 5 servings of fruit and vegetables each day. 40% of the population (adults and children) do not engage in regular moderate physical activity. 62% of the population is considered overweight or obese.

What has been done
Florida A&M University EFNEP Program deliver a series of nutrition lessons to participants in assigned areas. Collaborating with local organizations and expansion into non-traditional settings, such as faith based organizations and community programs with focused audiences, provide a mechanism to insure the targeted audience is reached. Collaborating with our 1862 Institution (University of Florida) insures that more families are reached as economic situations worsen.

EFNEP led the area with reaching participants in North Florida.

Results

Using ?Organ Wise Guys? Curriculum for Youth and Children; and ?Eat Right For Life? developed by UFL for adults, 4021 participants were reached. Other Events/ Topics used by teaching classes and food demonstrations, and gardens reached another 5584 participants. Those included: Summer Camp (Partner with Dupont Company) ? 2636 Participants; Ag Adventure Day ? 500; Commodity Days (10 Events 4hrs each) ? 1319; Farm Fest: Canning Demonstrations/ Food Safety Classes ? 1135. Of the 9611 Participants reached the following impact was noted: 62.4% of 3325 participants evaluated showed increase knowledge of Food Safety/Nutrition/ Food Selection. 58.3% of 4789 participants experienced behavior changes to include making better food choices, exercising more and managing health problems better. 37% of 4000 participants showed a change in social, environmental condition change. Of 9611 participants reached, 6363 or 66.2% MADE CHANGES TO IMPROVE THE LIVES OF Florida families.

4. Associated Knowledge Areas

KA Code	Knowledge Area
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals
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
721	Insects and Other Pests Affecting Humans
722	Zoonotic Diseases and Parasites Affecting Humans

Outcome #2

1. Outcome Measures

Increase knowledge related to food hygiene and food safety on a global level

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
FAMU faculty provided technical training and direct assistance through the USAID ?John Ogonowski and Doug Bereurter Farmer ?to-Farmer Program?. The assignment was Food Safety

Management, e.g., Food Hygiene; New Recipe Development and Nutritional Enrichment at University of Fort Hare (UFH) Campus; Alice, Eastern Cape Province, South Africa (RSA).

What has been done
Faculty worked with four Co-operatives: 29 persons (13 females; 16 males) make up the membership with an additional 132 persons (relatives) directly benefiting. A Food Safety Fact Sheet was developed and left to use among co-operative members. Training sessions were conducted on food safety, hygiene, nutrition enrichment and three (3) new recipes were developed.

Results
Food Safety and hand washing techniques were demonstrated at a Special School with 49 students and faculty members. One faculty member received the Gold Level Presidential Volunteer Service Award in Washington D.C. for this program.

4. Associated Knowledge Areas

KA Code	Knowledge Area
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

Outcome #3

1. Outcome Measures

Families will increase food safety through changing behaviors in low income families related to nutrition

2. Associated Institution Types

- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	6363

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
FAMU: The Expanded Food and Nutrition Education Program (EFNEP) teach nutrition and food resource management to low-income families and youth. EFNEP assist families in acquiring knowledge, skills, attitudes, and changed behavior necessary to make healthy food choices for the whole family, prepare delicious and safe food, and make money and food stamps go further. As a result of bad economic conditions in the country, the Gulf Oil Spills, and other environmental conditions, more families in the state of Florida qualified under limited resources. According to

Florida Department of Consumer Science and Agriculture, over 2,180,787 people (13% of the state population) live in poverty. 38% of deaths are from nutrition related diseases: heart disease, stroke and diabetes. 72% of adults eat less than 5 servings of fruit and vegetables each day. 40% of the population (adults and children) do not engage in regular moderate physical activity. 62% of the population is considered overweight or obese.

What has been done

Florida A&M University EFNEP Program deliver a series of nutrition lessons to participants in assigned areas. Collaborating with local organizations and expansion into non-traditional settings, such as faith based organizations and community programs with focused audiences, provide a mechanism to insure the targeted audience is reached. Collaborating with our 1862 Institution (University of Florida) insures that more families are reached as economic situations worsen.

EFNEP led the area with reaching participants in North Florida.

Results

Using ?Organ Wise Guys? Curriculum for Youth and Children; and ?Eat Right For Life? developed by UFL for adults, 4021 participants were reached. Other Events/ Topics used by teaching classes and food demonstrations, and gardens reached another 5584 participants. Those included: Summer Camp (Partner with Dupont Company) ? 2636 Participants; Ag Adventure Day ? 500; Commodity Days (10 Events 4hrs each) ? 1319; Farm Fest: Canning Demonstrations/ Food Safety Classes ? 1135. Of the 9611 Participants reached the following impact was noted: 62.4% of 3325 participants evaluated showed increase knowledge of Food Safety/Nutrition/ Food Selection. 58.3% of 4789 participants experienced behavior changes to include making better food choices, exercising more and managing health problems better. 37% of 4000 participants showed a change in social, environmental condition change. Of 9611 participants reached, 6363 or 66.2% MADE CHANGES TO IMPROVE THE LIVES OF Florida families.

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 #4

1. Outcome Measures

Increase behaviors in commercial food services to reduce the incidence of foodborne illenss

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Foodborne illnesses continue to be a major health concern (CDC data), especially for those with compromised immune systems, such as infants, young children, older adults and people with certain medical conditions. A majority of foodborne illnesses in the US are due to microbial causes. In Florida, the majority of foodborne illnesses are attributed to commercial food service and foods prepared in private homes. Fresh produce is crucial to a healthy diet, but in the last three decades, the number of foodborne illness outbreaks associated with fresh produce has increased.

What has been done
Through educational programs increase food safety education of food handlers

Results
Food safety education of food handlers: Since 2001, more than 8900 food managers have taken the ServSafe® training, with a passing rate of 80% or higher. In 2010, 562 people participated in the food manager certification program with the UF Extension Food Safety and Quality Program in 20 counties. Seventy-eight percent of participants in the food manager certification program passed the exam, with an overall average score of 82/90. As a result of the implementation of this program, FCS county faculty continue to increase their food safety competency, using this knowledge to enhance food safety programs in their counties.

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 #5

1. Outcome Measures

Increase knowlege that leads to better BMP related to food saftey and foodborne illness through HACCP certification

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The UF/IFAS Juice HACCP Regulation Program has the specific objectives:
1)Provide the necessary training to allow for the development or annual review of a regulated company?s HACCP Plan (a federally-mandated food safety program for juice processors and packagers).
2)Deliver a program recognized by federal and state regulators (FDA and FDACS, particularly).
3)Convey complex, technical information accurately, efficiently and effectively through adherence to pedagogical best practices for adult learning.

What has been done
This is an ongoing program, spanning multiple years. We generally hold at least one workshop per year, and I will discuss the 2010 Training Workshop Series (with 56 trainees):
1) All participants (100%) felt better informed regarding the elements of validation and verification within the HACCP plan and how to properly report those items (knowledge).
2)All participants (100%) became authorized (or renewed their authorization) to work/manage their organization?s Juice HACCP plan (action).
3)All participants increased their understanding of food safety, particularly fruit and vegetable microbiology (knowledge). Some participants intended to revise plant/processing sanitation procedures as a result of that new learning (action).

Results
The impact of the individual client training is multiplied by training and leadership within each student?s organization as they return to their workplace. The processing plants range from 20-1000+ individuals, depending on the individual organization, so there is a considerable although difficult to measure direct training impact. Also, the overall juice industry ($7 billion for Florida orange juice alone) is positively impacted by food safety programs that decrease the risk of any foodborne illness associated with any juice, which would have adverse impact on the entire sector.

4. Associated Knowledge Areas

KA Code	Knowledge Area

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

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Florida is presently being affected by the economic issues plaguing the world. There are also public policy changes, governemtn regulations and reduced appropriations affecting Extension and the land-grant university as a whole. There are competing programmatic challenges and the general public tired from years of stress and uncertainity are also reacting negatively as they try to save their jobs and homes. Florida has also been told to expect another 3 to 6% reduction in legislative funds and as counties are also being cut back by the state it is expected that IFAS and especially Extension will be seriously impacted.

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

Evaluation Results

Foodborne illnesses continue to be a major health concern (CDC data), especially for those with compromised immune systems, such as infants, young children, older adults and people with certain medical conditions. A majority of foodborne illnesses in the US are due to microbial causes. In Florida, the majority of foodborne illnesses are attributed to commercial food service and foods prepared in private homes. Fresh produce is crucial to a healthy diet, but in the last three decades, the number of foodborne illness outbreaks associated with fresh produce has increased.

Home food preservation is returning as a popular activity across Florida. Many home food processors are using practices that put them at high risk for foodborne illness and economic losses due to food spoilage. An increase in the number of botulism cases in Florida in recent years was due to improper canning practices and preservation of garlic in oil. For 2010, the food safety and quality program is reporting on two major objectives: 1) increasing food safety education of food handlers and 2) increasing the use of proper home canning procedures and other home food preservation techniques among consumers.

Key Items of Evaluation

Improving safety of home canning and home food preservation: Home canning classes have become popular lately due to the economic downturn and consumers' increased interest in health and nutrition. As a result of collaboration among Extension staff, continued updates with the latest food safety information, and increased training efforts, many counties either continued to offer or started to offer food preservation and canning programs in the last two years. In 2010 alone, 97 classes on home canning and food preservation were taught in 15 Florida counties, reaching 1,584 attendees. In addition, a canning workshop was offered to youths and volunteers (n = 20) during the 2010 state 4-H Congress. According to a comprehensive evaluation from one county (n = 203), although the overwhelming majority of class participants had never done home canning previously, between 80 and 100% of all respondents to post-class surveys indicated that they were "pretty sure" or "very sure" about their ability to safely preserve various foods. More than 90% of those who had canned before said they were able to identify at least one practice they needed to change as a result of the class. Respondents indicated that they intended to preserve or can products ranging from jam and jelly to seafood and wild game.

Food safety education of food handlers: Since 2001, more than 8900 food managers have taken the ServSafe® training, with a passing rate of 80% or higher. In 2010, 562 people participated in the food manager certification program with the UF Extension Food Safety and Quality Program in 20 counties. Seventy-eight percent of participants in the food manager certification program passed the exam, with an overall average score of 82/90. As a result of the implementation of this program, FCS county faculty continue to increase their food safety competency, using this knowledge to enhance food safety programs in their counties

V(A). Planned Program (Summary)

Program # 25

1. Name of the Planned Program

Food Safety Research

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
503	Quality Maintenance in Storing and Marketing Food Products	0%	0%	25%	
504	Home and Commercial Food Service	0%	0%	25%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	0%	0%	25%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	0%	0%	25%	
	Total	0%	0%	100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Actual	0.0	0.0	39.1	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	990697	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	990697	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

In Food Safety Research Florida scientists have moved to more interdisciplinary, multi-investigator projects that focus on greater integration of strengths in food and nutritional sciences. Research is being looked at in areas of food safety such as juice and beverages, food distribution and emerging pathogens. Core programs are taking place in food microbiology and sagery and food processing engineering.

2. Brief description of the target audience

Restaurants (owners and workers)
general population
Harvesters/packers/growers

V(E). Planned Program (Outputs)

1. Standard output measures

2010	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: 2010
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Actual	0	12	12

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 and evaluate shelflife of poultry products that require no refrigeration for use in third world countries.
2	Protect food from contamination by pathogenic microganisms, parasites, and naturally occuring toxins that leads to improved food safety

Outcome #1

1. Outcome Measures

Develop and evaluate shelflife of poultry products that require no refrigeration for use in third world countries.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Jeremie, Haiti is comprised of a population of approximately 95,100 people. Approximately 30% of the population is children and approximately 90% of them suffer from malnutrition. Due to poor economic conditions and lack of available nutritious food, there is an urgent need to identify and utilize protein sources in an effort to provide nutritious food for the Haitian children. In addition to the need for a protein source, there is also the need for shelf stable products that require no refrigeration. There is also a need to insure that the foods supplied are good sources of iron, because approximately 80% of the children are anemic. The utilization of under utilized poultry, red meat and fish protein in undeveloped countries such as Haiti will provide an excellent protein source in the Haitian diet. A combination of animal and plant protein with other approved food ingredients will provide the necessary protein and iron needed in the diets.

What has been done
The objectives of this research are to: 1) determine the most economical procedure for production of protein food products, 2) determine resources and ingredients readily available to the Haitian population for utilization in these food products, 3) develop education programs that will provide food safety, food science and technology training for the Haitian educators and 4) develop a long term relationship with Haiti that will involve education and hands on experience for their students, as well as students at University of Florida.

Results
The appropriate growing facilities are being constructed, and chicks are being purchased for phase One of the project. Educational programs are also being developed. The pastured poultry program will provide a constant supply of poultry protein for the Haitian citizens. A sustainable agriculture program will also be developed that will provide knowledge and skills for the Haitian

farmers to become self-sufficient and independent producers.

4. Associated Knowledge Areas

KA Code	Knowledge Area
503	Quality Maintenance in Storing and Marketing Food Products
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

Protect food from contamination by pathogenic microganisms, parasites, and naturally occuring toxins that leads to improved food safety

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

There are an estimated 60 to 80 million individuals who contract foodborne illness each year leading to approximately 5,000 deaths. The annual costs of foodborne illness in the U.S. are estimated at from $5 to $6 billion, including both medical costs and productivity losses. A significant percentage of these illnesses is due to pathogenic bacteria associated with poultry meat. In addition, the maintenance of poultry quality and development of poultry products that can assist in meeting the needs of inhabitants in undeveloped as well as developed countries is a top priority of this project. The intent of this multistate regional research is to efficiently use the capabilities of the cooperators and their respective facilities to achieve the project objectives that address current regional, national and global priorities that relate to poultry meat safety, quality and new product development.

What has been done

a. To research chemical interventions for eliminating pathogenic and spoilage bacteria from poultry products. b. To identify and evaluate biological interventions, such as competitive

exclusion or biologically derived molecules, for eliminating pathogenic bacteria from poultry processing equipment surfaces and products. c. To evaluate novel thermal processes for eliminating pathogens and extending shelf-life of poultry products. d. To research novel engineering approaches for producing safer poultry products. e. To evaluate USFDA approved ingredients to enhance acceptability of poultry products. f. To produce poultry products with application for developed and undeveloped countries.

Results

Project One. Evaluation of Celery Juice Powder containing Pre-generated Nitrite - The turkey bologna manufactured with a natural celery juice powder ingredient that contained pre-generated nitrite had similar appearance, aroma, texture, and flavor when compared to the control product that was manufactured with the conventional synthetic sodium nitrite currently used in muscle food products as curing agent. The celery juice powder ingredient did not influence onset of rancidity in the bologna product. No Staphylococcus aureus, Salmonella or Listeria monocytogenes was detected in the treatments during 10 weeks storage. The celery juice powder containing pre-generated nitrite will allow for "Natural" labeling to be used for processed poultry cured products. Natural products constitute an important niche market for today's consumers. Project Two. Evaluation of sodium metasilicate - It was determined that 2% Sodium metasilicate marinade solution was effective in reducing S. Typhimurium counts by 3 logs after Day 0 and through 7 days. The 1% sodium metasilicate treatment resulted in 1 log reduction through 7 days storage. Chicken fillets treated with 1% and 2% sodium metasilicate had 1.3% higher marination yield than the control fillets. The pH of the meat increased as the concentration of sodium metasilicate increased. All treatments had similar juiciness, chicken flavor intensity, tenderness and off-flavor characteristics. Sodium metasilicate will provide an additional USDA and USFDA approved antimicrobial ingredient for use in the poultry industry. The use of sodium metasilicate will have significant economic impact on the poultry industry. Sodium metasilicate can be used as a processing aid to maintain the original weight of the product during processing and cooking.

4. Associated Knowledge Areas

KA Code	Knowledge Area
503	Quality Maintenance in Storing and Marketing Food Products
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

The weak economy and reduction of funding in the state continues to impact research. Also, weather conditions common to the tropics including hurricanes, weather extremes from drought to flooding have impacted Florida over the past year.

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

Evaluation Results

Florida is a mecca for toursits from around the world with well over 53 million visitning each year. Because of this restaurants and food services abound. The economy also has increase the numbers of people growing their own foods and canning them. Both of these lead to the need for vigilance in food safety from farm to table. Florida Extnesion has some o fthe best faculty in the country working on food safety research looking for ways to reduce disease, chemcials and pathogens from the foods we eat.

Key Items of Evaluation