

# 2012 University of Florida Research and Extension and Florida A&M University Extension Combined Annual Report of Accomplishments and Results

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## I. Report Overview

### 1. Executive Summary

#### Final Executive Summary

As Florida's 1862 flagship land-grant institution, the University of Florida's (UF) Institute of Food and Agricultural Science (IFAS) and the 1890 Florida A&M University (FAMU) College of Agriculture and Food Sciences (CAFS) have a unique responsibility to improve the state's agricultural productivity through research, extension and education. With every \$1 spent on agricultural research producing a \$10 return, we believe it's money well spent. Our priorities include creating energy independence, helping agricultural and natural resource industries become more diverse and efficient; protecting and conserving water supplies; developing new high-value agricultural crops and cultivars that lead to agricultural sustainability related to climate changes and defending the state from emerging pests, plants and diseases. At the same time we are committed to reaching all people with the research-based knowledge needed to solve problems and improve the quality of life.

In an effort to identify needs and issues in this changing world, over the last 15 months both land-grant colleges (UF/IFAS and FAMU/CAFS) have been undergoing a long-range planning process and are still in transition between the 2004-2012 long range plan and the one that is presently being implemented for 2013-2023. This process will be completed in the next few months and at that point software and data collection processes will be updated to capture more of the NIFA indicators. In future the 2013-2013 long range plan will be referred to as the Research or Extension Roadmap--2013-2023. Both the 1862 and 1890 Extension programs will be reported under the Extension roadmap structure. For this final year we will report under the 2003-2012 long-range plan. However, some terminology (names of initiatives (state specific) have been changed to meet the transitional changes now occurring in the reporting system.

This Executive summary provides an overview of the 2012 reporting period for the University of Florida/IFAS 1862 Research and Extension programs, and the Florida A& M University/CAFS 1890 Extension program. First and foremost it should be noted that the Florida Cooperative Extension service (FAMU/CAFS and UF/IFAS) and the UF 1862 research have met all requirements of the law. The 1862 Extension programs expended over 25% of Smith-Lever dollars in integrated and multistate programs respectfully. The 1862 research program expended 25% of Hatch dollars in integrated programs as required by law. Along with the 25% requirements we met all other necessities including the following:

#### Peer and Merit Reviews Extension

It has always been important to both research and Extension to review all Extension programs and research projects. This year because of the long range plan all the Extension programs were reviewed following the strategic plan to identify strengths, weaknesses, threats and opportunities based on what we heard through the grass roots listening sessions and other information obtained during the long range plan. Based on this all Extension goal and focus areas have been visited by committees of faculty, industry leaders and other to develop new initiatives on which Extension wished to focus over the coming years. These areas will be the primary focus for Extension. This information is recorded and kept within the Program Development and Evaluation Center.

### **Research**

Also out of the long range plan areas that require research were identified. Research had looked at needs identified by stakeholders through their advisory committees, faculty, industry leaders and others in order to focus on the most important areas needing research. Each project continues to be reviewed through a peer reviewed process and the information is kept within the PI department administrative office.

### **Stakeholder Inputs**

As was mentioned above the Florida land-grant colleges are in the process of concluding a 15 month strategic planning process. The 1862/1890 Extension strategic plan included grassroots listening sessions involving thousands of comments from all walks of life. A strategic planning committee was formed to lead the strategic planning process. Faculty and advisory committees in every county were used to identify those who needed to be included in the listening sessions. The general public was invited in every county to both attend public meetings and to mail, email or blog their comments. The general public was also asked to identify others including underrepresented and underserved who should be included in the listening sessions. Listening sessions were then held across the state. This information was then compiled from all sources and presented in each region to the Extension dean and other administrators and interested parties including chairs of departments, industry leaders, etc. Part of this process also identified research needs that needed to be considered. Recommendations not tied to the land-grant mission statement were shared with other agencies including county and state officials.

From this information 7 areas of need were identified for Extension which will become the priority initiatives under which Extension will work over the coming years.

The 1862 research dean took the recommendations from the Extension strategic plan and also identified other research needs through UF/IFAS departments and their advisory committees. Most departments have advisory committees that are comprised of industry leaders as well as those individuals who represent the under-served populations in the state of Florida that have a direct correlation each individual department. Each department has now identified the most critical needs on which they will focus over the coming years.

Along with this grassroots efforts IFAS and CAFS have also solicited the needs of both the state and federal stakeholders in order to receive the necessary information for both bottom -up and top-down strategic planning to be sure all needs are being considered. Based on these grassroots approaches, UF/IFAS and FAMU/CAFS have successfully followed the guidelines for stakeholder input.

### **Program Inputs**

The total actual FTEs for Extension is 418.3 for 1862 Extension, 20.2 for 1890 Extension and 111.9 for 1862 Research. Both the 1862 and 1890 land-grant colleges had actual matching funds equal to the formula dollars as required. We have reported this amount separately to the OMB along with an explanation of the programs/projects as required by law.

### **Program Outputs**

The 1862/1890 Extension programs reached a total of 4,780,602 Florida clientele (adults and youth) directly in 2012 through field consultations, office consultations, group learning participations, phone and email consultations. Another 10,970,828 were reached through indirect contacts, primarily through captured web visits. Extension faculty also published over 637 peer reviewed publications.

The 1862 Research projects included the publication of over 1528 peer-reviewed articles. There were 24 patents obtained in 2012--most of which were new cultivars developed for Florida's unique climate.

### **External Threats**

External threats have been identified. The Florida land-grant universities have been severely tested by the economic situation that continues to exist in Florida. While funding has decreased, the needs of

Floridians has increased leading to faculty burnout and in some cases voluntary losses of state specialists and county agents. This in turn has increased workloads on others. Faculty have seen no raises in the past five years and we have lost federal, state and county dollars which might have eased the situation. Foreclosures have been extremely high in Florida because of the high unemployment rate.

Over the past few years we have had hurricanes, floods, serious fires and other natural disasters especially in the panhandle of the state. Sinkholes have become a serious problem, many of them in residential areas. Several deaths have occurred. As a major port state we continue to have about one invasive plant, pest or other danger to the agricultural industry enter the state each month. This puts a great deal of pressure on researchers to identify these dangers before they enter the state and find solutions before they impact agriculture. This is not always possible.

### **NIFA Initiatives**

The Florida land-grant universities have always seen the five NIFA initiatives as important. However in the past we have reported them within larger issues that have been identified by Florida residents. For example, child obesity is an important issue and Florida Extension has been working closely with the Commissioner of Agriculture and small farmers to provide healthier local food in the Florida public school system. However, in the past because this is reported as part of the larger obesity problem we have not been able to separate out numbers related specifically to children. Since all of our nutrition programs have reduced weight and better health as objectives (as has been identified by our stakeholders as the most important need) we are in the process of changing our data collection to capture the more specific NIFA information. That will occur in 2013-2014 as we being to enter information from the new roadmap.

Florida has also always collected information related to food security and global hunger but in the state of Florida clientele have been more interested in seeing it reported under sustainability and profitability since jobs and the economy are the number one issue in Florida and has been for the past five years. Again, we will report more specifically on these areas along with climate, energy and food safety in the coming year as we move into the first year of the new long range plan.

### **Highlights for Extension**

Agriculture, horticulture, natural resources and related industries are vital components of Florida's economy. Florida's 47,500 farms produce nearly 300 different commodities on more than 9.2 million acres. Total economic contributions for agriculture, natural resources and related food industries broadly defined to include allied inputs and services, manufacturing and distribution, and nature-based recreation, were 2.01 million jobs, representing 14% of the state workforce, and \$109 B in value added, representing 10.3% of state Gross Domestic Product. These industries are extremely diverse. More than 90% of Florida's producers are small farmers, including limited-resource farmers. It is imperative that our agricultural and horticultural producers continue to be economically and environmentally sustainable, as these enterprises provide the products that increase our quality of life and provide access to safe and nutritious food.

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

### **UF/IFAS Extension**

Long-range planning is a process by which we envision our future and the challenges and changes facing us over the next four years. It also is a time for us to reflect upon our purpose, vision, and strategies

for carrying out our mission. In examining our past while envisioning our future, we can better determine how well-prepared we are to help the people of Florida cope with challenge and change. Because we live in a changing world, our preparation also must include the challenges and changes of the global economy.

As the extension educational arm of the University of Florida's land grant mission, we have a rich history of

- Grassroots involvement in the determination of educational priorities;
- The use of volunteers in educational programs, initiatives, and projects;
- Collaborative relationships within and between state partners;
- Application of knowledge for problem solving.

Because of our commitment to grassroots involvement, the Extension long-range planning process has reached out to the community/individual level. The valued perspectives that result when stakeholders, county extension advisory committees, traditional and potential audiences and Extension faculty come together help us translate Extension's purpose, vision, and strategies for carrying out our mission into tangible future programs that address economic, environmental and life quality issues facing individuals, families and communities.

Since no organization can be all things to all people, particular focus is directed toward issues, problems, and/or concerns that affect people involved in agriculture; aquatic, coastal and aquaculture programs, natural resources and the environment, youth development, family and consumer sciences, energy and housing, and community. Extension has developed seven high-priority initiative areas in which to focus:

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

#### **Specific Highlights of the IFAS Extension Programs**

Extension educational programs throughout the state have addressed but are not limited to:

##### **Agriculture:**

- Food safety education including Good Agricultural Practices (GAPs), HAACP, cottage industry and safety plans for small farms which will increase local buying and access to safe and nutritious food.
- Food system development such as farmer's markets, community gardening, food hubs, processors, and wholesale/direct markets increasing access to safe and affordable food.
- Beginning farmer and rancher classes, food manager certification, marketing and business planning and consumer education to enhance understanding of food systems in local communities that ensure access to safe and affordable food.
- New technologies that will result in increased yields, reduced inputs, increased efficiency, increased economic return and conservation of resources.
- Best management practices resulting in increased adoption of irrigation and nutrient practices reducing impacts to natural resources and maintaining economic viability.
- Development and use of decision tools that decreased the risk of farm operations due to climate variability and change.
- Pest management information to increased detection and integrated management of pests that will ensure economic crop production and less crop losses due to pest.
- Basic information to decision makers on Florida's agriculture industries that inform and shape decision making processes that will ensure food access and distribution.

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

### **Nutrition and Obesity**

Obesity prevention efforts in Extension are supported by translational research conducted by IFAS faculty in collaboration with faculty in UF's College of Public Health and Health Professions. Targeting medically underserved rural counties, IFAS faculty and their partners conducted a six-month weight management program at Extension offices followed by randomization of participants to various extended care treatments (the research component). The six-month program is modeled after the CDC's successful Diabetes Prevention Program research study, which demonstrated that an intensive lifestyle intervention that resulted in weight loss of five to ten percent of body weight reduced diabetes risk by 58% in persons with pre-diabetes.

One of the major health consequences of obesity is **type 2 diabetes**, which affects over 26 million Americans and results in an estimated **\$245 billion** in health care costs annually. This year IFAS Extension applied for and was awarded a contract to implement the National Diabetes Prevention Program (NDPP) in Broward and Palm Beach Counties in partnership with Molina Healthcare. The four-year (2012-16) CDC-funded project will bring close to \$900,000 to UF IFAS Extension. Classes are anticipated to begin June 2013. In addition, 17 Extension faculty in other counties have been trained to teach the NDPP, and I have applied to the Diabetes Prevention Recognition Program (DPRP) for **UF IFAS Extension** to be a recognized program provider. The DPRP ensures program quality and provides a registry of organizations that provide effective diabetes prevention lifestyle interventions for use by agencies, organizations, private businesses, and insurance companies looking for diabetes prevention programs for their clients and patients.

### **The Environment and Public Issues:**

Issues like water quality, land use change, nutrient management, etc. are increasingly important to landscape professionals, policy makers, land managers, and also to the general public. The Center for Landscape Conservation and Ecology (CLCE Center) and the Center for Public Issues Education (PIE) undertake integrated research projects that focus on the horticultural and applied social science needed to address these issues and also to communicate more effectively to and with the public.

Members of the agricultural industry need proven and trusted recommendations they can use to manage their businesses successfully and increase their productivity. Homeowners also need input on how they can effectively manage their landscapes while adhering to conservation practices. The CLCE Center utilizes a unique team of interdisciplinary faculty to develop landscape management practices and provide science-based interdisciplinary recommendations about plant choice, plant maintenance, and water and fertilizer use for homeowners, landscape managers, horticultural industry professionals, governmental and community organizations, and other key stakeholders.

The PIE Center provides the link between industry professionals, local communities and the public so they can work together to develop management practices to protect the environment and preserve jobs. The PIE Center is the "go-to" information resource for Floridians designed to equip the public and policy makers with the objective, research-based information they need to make decisions that strengthen local economies, preserve and create jobs and protect the environment.

The partnership between the CLCE Center and the PIE Center offers an interdisciplinary approach to key issues related to Florida's economy and environment. Through its research, education, and outreach, the CLCE Center seeks to promote research-based best management practices among landscape professionals and other members of the agricultural industry and to educate homeowners on sustainable landscape practices through its research, education and outreach. CLCE also seeks to train students who will enter careers that allow them to engage in and promote sustainable landscape practices. Potential

outcomes and benefits of the center's efforts are wide reaching.

### **Energy**

Energy cost, availability and options, continues to be a topic of great interest to producers of general and specialty agricultural commodities from large scale production to small farms. Alternative energy technology applications for solar, biomass, anaerobic digestion, for biofuel or heat generation, or electrical production are all of interest to residents and producers. The spectrum of alcohols for renewable fuels (ethanol, methanol, butanol) and their feed stocks have all been educational opportunities for the land grant research and extension mission statewide. Technologies necessary to make these options practical to small and large scale producers are challenges land grant universities across the nation and southeast in particular are charged with addressing.

The UF/IFAS Center for Renewable Fuels and Chemicals and Dr. Lonnie Ingram have partnered with the paper industry in North Florida and have provided numerous educational contacts and provided numerous educational events and tours pertaining to ethanol production from cellulose (numerous campus and county extension faculty). Production of biogas (methane) is an active mobile extension demonstration from Dr. Ann Wilke's effort's that has toured the Florida and Georgia. In Taylor County, extension is using a modified 1995 Dodge Dakota demonstrating the gasification of wood for use in transportation. This vehicle traveling at highway speeds, consuming 1 lb. of truss plant waste (pine) per mile, this vehicle can travel 2000 miles for a fuel cost of \$20.00.

Various Solar technologies being demonstrated include thermal water heating for residents and greenhouses, solar panels used for electrical energy production for residential use and remote livestock watering in several locations by UF/IFAS Faculty.

Plant selection for biofuels production is under the research and extension energy efforts. Species being considered vary from Switch grass and energy cane for ethanol production, to *Jatropha* genetic selection for biodiesel production.

### **FAMU/CAFS--1890 Extension**

#### **Extension: Solutions for Florida Citizens**

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

The Cooperative Extension Program is the outreach arm of the College of Agriculture and Food Sciences (CAFS) at Florida A&M University (FAMU). The FAMU Cooperative Extension Program provides research-based educational information and direct technical assistance to improve the quality of life for limited resource citizens. As a result, countless residents in the North Florida region have been enriched through the positive impact of significant information shared by specialists and agents through the Cooperative Extension Program. Reaching out to serve farmers, rural and urban families, elderly, youth, entrepreneurs, small business owners, and underserved communities continues to be a rich tradition of the FAMU/CAFS Cooperative Extension Program. In 2012, The FAMU Cooperative Extension Program followed strategic goals that improve the quality of life for Florida's underserved and limited resource citizens. In particular their goals:

- Create innovative research-based program technologies which enhance the profitability and sustainability of small farms and urban and rural communities
- Promote the socio-economic well-being of limited resource individuals and families
- Develop specialized educational and enrich programs designed to attract and retain youth involvement in agriculture and related sciences.

As a unit of the Florida Cooperative Extension Service, the program is also responsible for coordinating educational programming and outreach activities of mutual benefit with the University of Florida/Institute of Food and Agriculture Sciences (IFAS).

Florida citizens in the following counties are served by extension faculty and staff in the FAMU Cooperative Extension Program: Gadsden, Gulf, Franklin, Hamilton, Jackson, Jefferson, Leon, Madison, Suwannee, Wakulla, Hillsborough and Escambia.

In these counties, FAMU/CAFS is particularly interested in issues related to the following Cooperative Extension programs which they reach through the statewide, regional and county initiatives:

- Agriculture and Natural Resources, including:
- Farm to School
- Animal Health & Small Ruminants
  - New & Beginning Farmers
- Agribusiness Management and Alternative Market Development
- Small-Scale Crop and Livestock Enterprises
- Community and Urban Agriculture
- Food Safety
- Integrated Pest Management
- Sustainable Agricultural Systems
- Community Resource Development
- Family and Consumer Science, including
- Expanded Food and Nutrition Education Program
- Family Resource Management
- 4-H and Youth Development
- 

**Specific Highlighted programs from FAMU Extension:  
Small Farms**

A key issue within global agricultural research and development is the need to positively focus on the sustainable development of small farmers, resource poor farmers and their families. Though these farmers make up to 90% of the worlds farmers, often they have not had equal access and participation in programs and training designed to assist large producers and agribusinesses.

Generally, agricultural research and extension have sought out medium and large farmers thought more successful, innovative, and readily able to adopt technology and contribute to growth and development. A recent USDA Census indicated that about 91% of all farms in the United States are small farms. Small farms represent over 90% of all farms in Florida.

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

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

Through the **Socially Disadvantage Farmer and Rancher program** FAMU conducted workshops/listening sessions to provide socially disadvantaged farmers and ranchers with information that will assist their farming operation. The goal of the project is to improve USDA/APHIS outreach service to socially disadvantaged/minority farmers and ranchers to encourage and/or improve their farming/ranching operations and activities. The program aimed to address global food security and hunger priority through

identifying and supporting farmers (and potential farmers) to increase farming, subsequently increase quality and quantity of food.

**Small Farms initiative**-- Approximately 20 southeastern school districts in Florida, Alabama, Arkansas and Tennessee improved nutritional value of school meals for over 300,000 children due to incorporation of local and regional fresh products; fresh products included leafy greens and sweet potatoes; schools purchased approximately 100,000 lbs of fresh products for school feeding programs from local farmers 1-2 times per month 8 months during the 2011-12 and 2012-13 school years. School districts participating included Leon, Gadsden, Jackson and Miami-Dade Counties in Florida; Alabama Fresh Fruit & Vegetable Program (statewide); Memphis City Schools in Tennessee; West Memphis and Forrest City Schools in Arkansas.

The United Nations General Assembly endorsed a decision to accredit several organizations to the 2012 United Nations Conference on Sustainable Development. These accredited organizations were found to exhibit the necessary attributes of an organization demonstrating expertise in an area of sustainable development relevant to the UN Conference. FAMU Statewide Small Farm Programs was one of the organizations that received distinction and accreditation to participate in the global 2012 United Nations Conference on Sustainable Development.

### **Youth**

AgDiscovery is an outreach program to help middle and high school students learn about careers in agriculture. AgDiscovery program at Florida A&M University (FAMU) targets diverse population of students (14-17 years of age) from across the states with interest in animal science and related field.

In the program, the 20 students selected (June 2012) to participated in hands-on activities labs, workshops and site visits for two weeks. At the end of program, the students are evaluated and the student evaluate and the program. Results from analysis showed over 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 feedback(via emails) from student participant regarding the impact of the program on his career choice.

FAMU Animal Science (Veterinary Technology & Pre-Veterinary track) program current has six past AgDiscovery student enrolled in its program. This will increase the number of veterinary professional thus lead to herd health and subsequent food safety.

### **Highlights for Research UF/IFAS Research**

The vision for Florida's 1862 Research is integrated into a three-part multidisciplinary approach that encompasses production agriculture, natural resources and a human dimension. These three areas include much of what Florida sees as critical areas that require cutting edge research to find the best solutions for Florida and the people of Florida.

#### **Production Agriculture**

Research has identified five multi-disciplinary program groups within production agriculture that are of vital importance in Florida:

1. Enhance sustainability
2. Respond to and integrate with changes in climate and agro-ecosystems
3. Ensure food safety and security
4. Enhance, collect and preserve germplasm
5. Develop renewable resources.

#### **Natural Resources**

The overarching goal for Natural Resources is to enhance the economic, environmental and social sustainability of natural resources. IFAS scientists from individual disciplines are well-positioned to come together to answer complex questions through an integrated approach using whole systems analysis. Most challenges demand a multi-disciplinary approach and a new science of synthesis and integration. Five



critical areas to focus on in this framework are:

1. Ecosystem health and services
2. Climate change
3. Renewable energy
4. Water resources
5. Resource production.

### **Human Dimensions**

Human dimensions are woven throughout the fabric of IFAS research programs, sometimes as stand-alone research projects, and sometimes as an integral part of multi-disciplinary research projects and programs. As problems facing agriculture and natural resources become more complex, multi-disciplinary approaches are a necessity and are more and more being demanded by funding agencies.

Five areas for establishing multi-disciplinary research efforts within IFAS were identified

1. Land, air, water use
2. Food systems
3. Climate change
4. Energy
5. Humans

There are commonalities among the three multidisciplinary areas identified by research. These commonalities also include the five NIFA project priorities.

Commonalities:

- Ecosystem health and services
- Resource production
- Water
- Sustainability
- Food Systems

Commonalities specific to NIFA priorities:

- Global Food Security and Hunger
- Climate Change
- Sustainable Energy
- Childhood Obesity
- Food Safety

**Specific Highlighted areas of research include the following:**

### **Nutrition and Obesity**

A research team is currently completing the final year of the Rural Lifestyle Intervention Treatment Effectiveness Trial (Rural LITE), which is a follow-up to the Treatment of Obesity in Underserved Rural Settings (TOURS) study (2003-07), which was successful in reaching weight loss goals and improving health parameters such as blood lipids, blood glucose, and blood pressure. **A refereed journal article evaluating the cost-benefit of TOURS was published in the Journal of the Academy of Nutrition and Dietetics September 2012.** Rural LITE (2008-13) is examining three levels of intensity of treatment to identify the minimum intensity required to produce clinically meaningful, long-term weight reduction, and therefore, the most viable and effective program that can be widely applied in the Extension setting.

In another project: Treatment of overweight in young people is challenging and involves addressing the family environment as well as individual lifestyle choices, particularly among younger children who often have minimal control over their meal and snack options. IFAS Extension specialists on the **Extension Family Lifestyle Intervention Project (E-FLIP for Kids)(2009-14)**, which is studying family-based and parent-only behavioral interventions for weight management in children 7-12 years of age at Extension offices in medically underserved rural counties. This project is informing the development and implementation of Extension outreach activities to address the growing problem of childhood obesity in Florida.

### **Energy**

The federal government has mandated the production of 36 billion gallons of biofuel to help meet the

nation's transportation needs by the year 2022. Although 15 billion gallons is expected to be produced from grain ethanol the remaining 21 billion gallons is expected to come from feed stocks, such as sugarcane; perennial grass types and oilseed crops, such as soybean.

Although grain ethanol has been used for a long time, research is needed to develop high-yield bioenergy crops. These may come from existing crops or cultivars that are yet to be developed. Production methods and BMPs also need to be developed that minimize the use of water and fertilizers and are compatible with current land uses. Final products must be cost-effective for both growers and biofuel producers to be sustainable. Water quality and land use have to be considered. Nitrogen runoff which is an issue in Florida waterways must be kept under control.

In 2012 Florida has been working on one cultivar in particular called energy cane that has been developed by crossing cultivated Florida sugarcane with wild grasses that offer desirable traits for biofuel production. This cane has a high level of cellulose that can be converted readily into ethanol.

### **Agriculture and the Environment**

There are few issues related to agriculture and Florida's unique climate and environment that are not under investigation through Hatch funded research. From plant genetics to improved animal production many projects are underway or have been completed that are now having positive impacts on the state of Florida. Sources of biological controls for pests and weeds are numerous and many methods of improving water quality and quantity continue to be a priority in the state of Florida. New cultivars that provide new crops for Florida farmers adding to profitability and sustainability are another high priority with 24 new cultivars receiving patents in 2012. Finding solutions to citrus diseases also continues to be of major importance. Here is one example of recent research in the Agricultural area:

#### **Control of Whitefly**

Cucurbits are a major vegetable crop grown in Florida and the Caribbean region. Currently, crop-plant physiological disorders and insect-transmitted diseases have become serious problems for many growers in Florida and the Caribbean region. One of the most important plant physiological disorders in cucurbits is squash silverleaf (SSL) disorder. SSL is associated with the feeding of immature whiteflies, *Bemisia argentifolii* Bellows and Perring. Crops in the Cucurbitaceae are highly susceptible to several insect-transmitted viruses. Several aphid species have been associated with transmitting viruses in a stylet-borne non-persistent manner. The hypothesis was that the use of synthetic (reflective) and living mulches (buckwheat) in combination with a reduced-risk insecticide would suppress the activity of whiteflies and aphids, thus reducing viral infection and the occurrence of plant disorders. The ultimate benefit would be significantly less damage to the environment and non-target organisms while obtaining effective sustainable pest control.

Results indicate that the use of imidacloprid in combination with mulches enhanced the control of whiteflies and apterous aphids in the zucchini plantings. Both living and reflective mulch with imidacloprid gave equal protection against whiteflies and aphids. However, despite reducing pest numbers, the use of living mulch resulted in low yields, which may be related to plant competition. This adverse effect of the living mulch (buckwheat) may limit its adoption in pest management programs until more research is conducted to determine correct plant spacing, as well as time of planting. The lower reduction in pest numbers (whiteflies and apterous aphids) that were seen in plots treated with living and reflective mulches may result in reduce frequency for virus transmission in squash. These results are being shared with county extension agents and are posted to various websites that growers can access. In addition, the results are also being disseminated through extension bulletins as well at the state horticultural meetings. Finally, these data are being presented at several horticultural meetings.

The complete list of Florida Hatch funded research projects can be found in the CRIS database.

**Total Actual Amount of professional FTEs/SYs for this State**

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	345.0	27.0	90.0	0.0
Actual	418.3	20.2	111.9	0.0

**II. Merit Review Process**

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

- Internal University Panel
- Expert Peer Review

**2. Brief Explanation**

Because FAMU and IFAS Extension are going through a 15 month strategic planning process they are looking at all existing goal and focus areas. Instead of the normal expert peer review there is a wider internal university panel looking at each of the goals and focus areas. Significant changes for improvements are being recommended based on the grassroots responses from all 67 counties, industry, and additional stakeholders. Changes will be reflected in the 2014 POW where newly revised initiatives and priority work groups will replace the existing goal and focus areas that were implemented at the beginning of the last strategic planning process in 2003. For future years we will return to expert peer reviews on an annual basis as part of the Extension Merit Review.

Although UF research has also undergone a strategic plan they will continue to use the peer review process Florida has incorporated for many years. There will be a peer review of any suggested research project and the results of these reviews will be housed in each department.

**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.**

UF/IFAS and FAMU/CAFS just completed an Extension grassroots strategic plan that included listening sessions with thousands of people through meetings, surveys, one-on-one conversations and through social media. Information was gathered and assimilated into priority needs that are aligned to the land-grant mission facing the state over the coming years.

1862 research also reviewed priorities through discussion within departments that included dialogue with their long standing advisory committees made up of industry, government, and others working in areas of interest. Research also received feedback from the Extension strategic plan. Many recommendations for research to solve existing or emerging issues were identified. This has been over a 15 month process and much of the change being recommended as well as decisions on programs to continue has come from these discussions with multiple stakeholders. The process has involved all faculty at both UF/IFAS and FAMU/CAFS.

**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.**

As part of the recent long range planning process faculty at UF/IFAS and FAMU/CAFS and in all counties were asked to meet with their advisory committees to identify stakeholder individuals and groups and to be sure that the underserved and underrepresented were included. Departments and RECs were also asked to provide names through their advisory committees and others with whom they interact. Industry leaders and legislative representatives were identified by faculty across the state. County government officials were asked to be involved in identifying groups in all 67 counties that they thought needed to be included. Ministers, bankers, business leaders and other community leaders were also asked to provide input.

**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.**

Input was collected in listening sessions, surveys, focus groups, social media sites, one-on-one, by mail and email with thousands of people across the state of Florida and beyond. The entire process is on file at <http://pdec.ifas.ufl.edu/lrp/>

**3. A statement of how the input will be considered**

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

**Brief explanation.**

Information was review and anything not falling within the land-grant mission was removed. The rest of the information was reviewed and put into areas with other similar or related issues. These groupings were renamed priority initiatives and seven of them emerged with an eight internal initiative identified for faculty professional development. Each of the seven initiatives were then broken down into priority workgroups. Each workgroup is populated by faculty with expertize in the issue area for each workgroup. The faculty represent 1862 research and extension and 1890 extension. The complete structure can be found in the Extension roadmap 2013-2023 (<http://pdec.ifas.ufl.edu/lrp/>) and in the 1862 UF research roadmap (<http://research.ifas.ufl.edu/> . Additional information for FAMU can be found at <http://www.famu.edu/cesta/main/>

**Brief Explanation of what you learned from your Stakeholders**

Jobs and the economy were number one in all discussions. Water quality and quantity is very important issue in all areas of Florida life. Although the NIFA initiatives are important to Floridians they see them as part of much larger issues as shown below:

**Initiative 1: Increasing the sustainability, profitability, and competitiveness of agricultural and horticultural enterprises.**

- Sustainability of production systems and alternatives
- Farm economics, entrepreneurship, and management
- Citizen awareness of food systems and the environment

**Initiative 2: Enhancing and protecting water quality, quantity and supply.**

- Water conservation
- Water quality
- Public awareness of water issues

**Initiative 3: Enhancing and conserving Florida's natural resources and environmental quality.**

- Informed community decision making
- Natural resources operations
- Environmental stewardship

**Initiative 4: Producing and conserving traditional and alternative forms of energy.**

- Conservation practices and efficiency improvement
- Alternative energy solutions
- Community capacity development

**Initiative 5: Empowering individuals and families to build healthy lives and achieve social and economic success.**

- Food safety and nutrition
- Housing
- Family financial management
- Aging well
- Human development and family relationships

**Initiative 6: Strengthening urban and rural community resources and economic development.**

- Economic development and entrepreneurship
- Community capacity building
- Public policy education

**Initiative 7: Preparing youth to be responsible citizens and productive members of the workforce.**

- Youth development
- Developing organizational and volunteer systems to support youth development

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
4584616	1810533	3912651	0

2. Totalled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
<b>Actual Formula</b>	4584616	1810533	1669658	0
<b>Actual Matching</b>	13768099	1810533	1669658	0
<b>Actual All Other</b>	0	0	8944	0
<b>Total Actual Expended</b>	18352715	3621066	3348260	0

<b>3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous</b>				
<b>Carryover</b>	2259896	0	0	0

**V. Planned Program Table of Content**

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



**V(A). Planned Program (Summary)**

**Program # 1**

**1. Name of the Planned Program**

Global Food Security and Hunger

Reporting on this Program

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
204	Plant Product Quality and Utility (Preharvest)	20%	10%	0%	
205	Plant Management Systems	10%	10%	0%	
212	Pathogens and Nematodes Affecting Plants	10%	0%	0%	
213	Weeds Affecting Plants	10%	0%	0%	
215	Biological Control of Pests Affecting Plants	10%	0%	0%	
216	Integrated Pest Management Systems	0%	10%	0%	
307	Animal Management Systems	0%	10%	0%	
308	Improved Animal Products (Before Harvest)	0%	20%	0%	
315	Animal Welfare/Well-Being and Protection	10%	10%	0%	
503	Quality Maintenance in Storing and Marketing Food Products	20%	20%	0%	
603	Market Economics	10%	10%	0%	
	<b>Total</b>	100%	100%	0%	

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	80.0	11.0	0.0	0.0
Actual Paid Professional	59.4	6.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
651579	569983	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
651579	569983	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

- Conduct workshops and meetings
- Deliver services
- Develop products, curriculum, resources
- Provide training
- Provide counseling
- Make assessments
- Work with the media
- Develop partnerships

**2. Brief description of the target audience**

- Producers
- Commodity associations
- Owners/Operators
- Managers/Supervisors
- Workers/laborers
- Allied industry representatives
- Small farmers
- Government/Regulatory
- County government
- State government
- Federal Government
- Tribal Government
- International governing bodies
- Harvesting/Packing/processing/distribution/transporting
- Retailers
- Importers/Exporters
- Youth and 4-H
- Youth educators
- Extension faculty

**3. How was eXtension used?**

eXtension use was not reported for this program

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	842005	1932286	0	0

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

**Patent Applications Submitted**

Year: 2012  
 Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
<b>Actual</b>	151	0	151

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

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

**Outcome #1**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	47722

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

**Issue (Who cares and Why)**

FAMU conducts annual Hazard Analysis and Critical Control Point (HACCP) food safety training workshop.

**What has been done**

The objective is to train food service processors, producers, and students in practices that will minimize potential food-borne hazards. The program administered a pre- (before the training) and post (after the training) to the participants to test their knowledge on food safety.

**Results**

For 2012 HACCP workshop, 13 participants took a 19-multiple choice-question test on food safety and potential hazards. Analysis showed that 100 percent (13 participants) improved knowledge (by up to 23%) after the training. One hundred percent of the participants also indicated that their experience gained from the workshop will make them more confident in dealing with HACCP matters.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
204	Plant Product Quality and Utility (Preharvest)
503	Quality Maintenance in Storing and Marketing Food Products
603	Market Economics

**Outcome #2**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	15319

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

**Issue (Who cares and Why)**

In 2011, the University of Florida IFAS Extension Small Farms Food Safety Implementation Team began conducting farmer trainings across the state.

**What has been done**

This successful pilot project was continued in 2012, during which team delivered six trainings statewide involving 50 farmers (plus one food safety audit preparatory workshop attended by 24 farmers at SFAE conference in Kissimmee in August 2012 . An agent In-Service Training (IST) ?Teaching Your Farmers How to Build Your Own Farm Food Safety Manual? was held on December 10-12, 2012 at Camp Weed near Live Oak. The evaluation component was implemented by Sebastian Galindo-Gonzales. Funding for agent travel and materials and supplies (food safety tool kit of educational materials) was provided by this FDACS Specialty Crops Block Grant. In total, 17 county agents and program assistants were trained in 2012 to deliver ?Build Your Own Food Safety Manual? workshops. Agents who attended the IST were asked to complete a pre- and post-test using an online form developed using Qualtrics software. A total of 17 agents took the pretest, and 13 took the post-test. Results were statistically analyzed by Dr. Galindo. In summary, agents increased their skills ( $p<.001$ ), and knowledge ( $p<.001$ ) of food safety.

A total of 40 county extension faculty are now members of the Small Farms Food Safety Implementation team. They work collaboratively to conduct farm food safety trainings at the county level. A standardized evaluation tool is used by all agents and results are pooled and analyzed by Galindo.

**Results**

Evaluations were completed by 29 farmers attending the trainings in Polk, St. Johns, Escambia, and Washington Counties. These farmers ranged from 1 to 51 years of farming experience and

were currently farming anywhere from 1 to 4,000 acres. However, most farmers were farming less than 100 acres of fruits or vegetables. A detailed report of the evaluation results was submitted with this final report. Highlights were as follows:

?Overall, the evaluations showed the farmers valued the training, viewed food safety plans as very important, and plan to implement a food safety program on their farm, even though most (74%) were not being required by their buyers or markets to develop one.

?Mean knowledge gain at all four training sites was 77%.

?Eighty nine percent of participants viewed the information received in the training as easy to very easy to understand, and 93% rated the intensity of their learning experience as high to very high.

?Importantly, all 29 farmers indicated they plan to have some type of audit conducted, and 20 indicated they plan to have a fee-based audit, such as a third party, customer, or regulatory audit.

Based on an industry food safety consultant's quote, the charge for preparing a farm typical of the ones owned by the training participants for a fee-based audit was estimated at \$8,000 to \$10,000. Even at the lower figure, the food safety trainings provided a savings of at least \$160,000 to those 20 farmers who were confident they could complete the plan on their own after the trainings and prepare for the audit.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
216	Integrated Pest Management Systems
503	Quality Maintenance in Storing and Marketing Food Products
603	Market Economics

#### Outcome #3

##### 1. Outcome Measures

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

Not Reporting on this Outcome Measure

#### Outcome #4

##### 1. Outcome Measures

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

##### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	11261

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

**Issue (Who cares and Why)**

IFAS and FAMU: Along with growing public awareness and demands for safe and nutritious produce, it has become increasingly clear that our small farms specialty crops industry is facing unique economic and communicative challenges regarding trade opportunities, regulatory issues, and customer expectations.

**What has been done**

Overall, the SCBG provided funding (\$132,549) that matched Smith-Lever Funds to help build capacity of Florida specialty crop small farm operators through the statewide small farms conference programming, statewide food safety training, and identification of challenges faced by Florida's small farm operators. Furthermore, food safety educational materials developed by Dr. Keith Schneider and his team (SCBG UF Project Number 00070629, 2009) were utilized during food safety trainings (Component Two) in this project. The outcomes of the present project significantly complemented previous

**Results**

program efforts and promoted statewide recognition of UF-IFAS and FAMU-CESTA Extension from agricultural leaders. The financial support awarded to this project facilitated the training of an additional 17 county extension agents and program assistants to join the Small Farm Food Safety Implementation Team (Component Two, \$35,000). As a result of this pilot training program, a total of 74 farmers participated in hands-on food safety trainings during 2012. Funding from this project (\$30,000) also was allocated to support the 4th FL SFAE Conference (Component Three), which was attended by over 750 stakeholders. Furthermore, funds were utilized for critical assessment of the economic impact of the involved land grant universities outreach efforts on Florida's small farm specialty crop industry (Component One, \$73,000).

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
212	Pathogens and Nematodes Affecting Plants
213	Weeds Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems
307	Animal Management Systems



308	Improved Animal Products (Before Harvest)
315	Animal Welfare/Well-Being and Protection
503	Quality Maintenance in Storing and Marketing Food Products
603	Market Economics

## **Outcome #5**

### **1. Outcome Measures**

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

### **2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

### **3a. Outcome Type:**

Change in Action Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	1462

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

#### **Issue (Who cares and Why)**

The Lake County Extension Small Farms Program was developed at the suggestion of the Lake County Livestock and Natural Resources Advisory Group. The primary goals of this program were to introduce Lake County land owners to the many agriculture opportunities available to them; to encourage good risk management and to assist in the developing of well thought out business plans.

#### **What has been done**

At the first class 82% of participants indicated that while they were interested in starting an Ag-business in the next year they had given no thought to developing a business plan. A follow up survey indicated that 85% of participants intended to research and develop a business plan prior to investing in their business. Follow up interviews with individual participants uncovered one woman who not only was able to develop a business plan based on the resources given her in the Small Farms class but was also able to obtain financing (a \$120k credit union loan) that had been denied to her prior to submitting a business plan.

2. Objective: Ninety percent of Lake County Extension Livestock and Horse Program Participants will demonstrate improved knowledge of good agribusiness practices including: risk management, marketing, regulatory practices, and financial management as measured by follow up electronic and telephone surveys as well as post program questionnaires.

## Results

### Outcomes:

o Ninety five percent of surveyed Lake County Extension Livestock and Horse Program participants (n=58) reported and/or demonstrated improved knowledge of good agribusiness practices as a result of their participation in Extension programs.

o As a result of participation in the Small Farm Series, 87.5% of new or potential farm owners (n=29) indicated the intention to review financial risks prior to investing money in a farming or ranching business.

Impact: The adoption of sound business practices such as accurate record keeping, risk management, and marketing are essential to the efficiency and long term sustainability of agricultural enterprises. As a result of participating in the Lake County Extension Livestock and Horse Programs local farmers and ranchers are better equipped to compete in today's marketplace.

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
307	Animal Management Systems
315	Animal Welfare/Well-Being and Protection
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 Protecting Florida from Existing and Emerging Pests and Diseases

#### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

#### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

Year	Actual
2012	9880

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Scouting for pests and disease is an import method of reducing crop damage.

#### What has been done

During the most recent Sugarcane Orange Rust field day in Hendry County, 85% (52) of the 61 participants correctly described environmental factors favoring the development of orange rust pustules and correctly identified the six sugarcane varieties (which occupy 80% of the sugarcane acreage) that are currently most susceptible to the orange rust pathogen and openly discussed the environmental factors that contributed to 2012 being a very heavy orange rust year.

#### Results

As a result of numerous informal group field visits to infested fields and scheduled field days to sugarcane orange rust fungicide demonstration trials, 100% of the grower and crop consultant participants (93 participants) could correctly identify sugarcane orange rust pustules on leaf tissues, discerned them from prior brown rust infections, and understood the region within the sugarcane plant canopy where orange rust infections typically appear first.

### 4. Associated Knowledge Areas

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

### Outcome #8

#### 1. Outcome Measures

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

#### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	2462

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

**Issue (Who cares and Why)**

In Hillsborough County Environmental Horticulture Extension one agent does extensive field visits that yield returns to producers who follow the recommendations from the agent.

**What has been done**

This agent will calculate a return on programmatic activity if information is taught (disease ID, pest ID, treatment options, cultural recommendations, etc.) to a producer, the producer receives that information, the producer adopts Extension recommended practices, and a successful result or outcome occurs.

**Results**

With this in mind the agent has had a few successful educational contacts with positive outcomes. One grower has switched fertilizer and water application timings based on extension recommendations to correspond to root flushes during the year. His calculations have reaped about \$10,000 per year in accelerated growth and inventory turns. Another grower has successful rooted cuttings based on site visits and educational information to gain \$1,080 in increased production. Another grower has adopted management practices to save \$6,000 on cedars that were starting to die from fungal pathogens. Another grower learned that his employees were potting liners too deep and lost about 40% of his plants during the potting stage. This will now be corrected from the agent's visit and will save thousands of dollars in lost plants, inputs, and wasted labor costs. It will also save impact in the environment by stopping unnecessary fungicidal root drenches in the future.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
213	Weeds Affecting Plants
216	Integrated Pest Management Systems

**Outcome #9**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

### 3a. Outcome Type:

Change in Condition Outcome Measure

### 3b. Quantitative Outcome

Year	Actual
2012	5895

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

The future of the Florida Citrus Industry is threatened by the presence of Huanglongbing (aka greening) which was first detected in Florida in 2005. To manage the spread of this disease, citrus growers have dramatically increased the use of pesticides to control the insect vector (the Asian citrus psyllid) of the bacterium that causes this disease. Despite increased use of pesticides, growers have found it difficult to keep psyllid populations at low levels due to the movement of this pest between neighboring groves.

#### What has been done

In partnership with Florida citrus growers, UF/IFAS/Extension developed and implemented what is now known as the Citrus Health Management Area (CHMA) program. The CHMA program functions to help growers coordinate their psyllid control efforts with that of neighboring growers to provide the area-wide control needed to maintain psyllid populations at low levels to reduce disease spread. Through the CHMA program, UF/IFAS/Extension delivers educational programs to aid growers in developing effective coordinated management strategies. This includes defining individual CHMAs (areas) in which coordinated sprays should take place and the timing and most effective product choices for those treatments.

#### Results

Since communication is key to success of this effort, a website [www.flchma.org](http://www.flchma.org) was established with pages for each CHMA to for growers to stay up to date on the latest planned coordinated sprays for their CHMA. Psyllid scouting data collected from 6,000 blocks of citrus every 3 weeks by USDA and FDACS is provided on the website in an easily accessible format for growers to stay up to date on psyllid populations in their areas. This also serves to convince additional growers to participate in the CHMA program after seeing the benefits of coordinated spray efforts in terms of reduced psyllid numbers. In 2012 the website was visited more than 107,000 times. To date, working with Florida citrus growers, 38 CHMAs have been established statewide encompassing more than 486,000 acres of commercial citrus groves. Since the startup of the CHMA program in 2011, psyllid populations have been reduced statewide an average of 68% in 2012. Due to this success, the CHMA program in Florida continues to grow and is also now being used as a model for psyllid control strategies being developed in Texas, California and Brazil.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
213	Weeds Affecting Plants
216	Integrated Pest Management Systems

#### V(H). Planned Program (External Factors)

##### External factors which affected outcomes

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

##### Brief Explanation

Florida is still being heavily impacted by the economic situation. Public higher education in Florida has lost more than 50% of state funding and has been impacted by other losses caused indirectly by the economic down turn. Issues related to Medicaid are also expected to impact us heavily. Changes in state, county and federal appropriations can also affect the outcomes related to the Florida land-grant mission. Because of limited resources in Florida and continuing devolution Extension programs can always be affected by changing public and governmental priorities. These can include appropriations.

Natural and national disasters can also affect the number of volunteers available to work with youth. Florida is a state located in the tropics. Natural disasters such as tropical storms and hurricanes are common annual occurrences in this state. Severe weather conditions such as droughts frequently led to large-scale fires. We also have other weather extremes such as floods leading to large scale damage especially along the coastal regions. All of these can have a direct and indirect impact on Extension programs.

#### V(I). Planned Program (Evaluation Studies)

##### Evaluation Results

Dealing with global security and hunger requires constant vigilance. First in the protection of our food supplies and second the need to be aware of hunger in the world and how best to cope with the need for increasing food supplies. Since Florida is one of the few states able to grow food year round in the United States many truck crops as well as fruits and vegetables during those months are supplied by Florida. Because we are a port state we also must be aware of the many threats related to invasive plants, pest and disease that can enter into the state. It has been stated that the U.S. is attacked by at least one new invasive plant, pest or animal on a monthly basis. As a port state that also has multiple international airports Florida must be on guard at all times and find ways to fight those that have invaded as well as those that have not yet arrived, but could potentially threaten Florida agriculture, the environment or the people who live in or visit the state.

Because the need for increasing food crops and dealing with food security issues there is a great deal of UF/IFAS and FAMU/CAFS Extension educational programs taking place in this area. In 2012 in surveys completed 70,843 clientele attending Extension programs in this area increased their knowledge in world hunger and protecting food supplies. 19,559, many of them involved in agricultural industry changed their behaviors in ways that increased scouting efforts and other methods that protect Florida from existing and emerging pests and diseases, using bio-energy to sustain and fuel Florida, and protect our food supplies while increasing crop productions with better BMPs or using newly developed and more disease resistant cultivars. 115 people working within the ag industry increased their knowledge in processing, distribution, safety and the security of food systems. 172 who were surveyed said that they made behavioral changes that improved the safety of food and 173 had broader impacts on their community through the changes that they made.

### Key Items of Evaluation

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, Rugose spiraling whitefly, Bondar's nesting whitefly, silverleaf whitefly, Sri Lanka weevil, pink hibiscus mealybug and Asian citrus psyllid.

One issue in solving invasive pest issues is related to communication. Most communications come from the top down. Communication can be impeded for a number of reasons including lack of trust and language barriers (jargon or foreign languages). People look to local sources as well as the University of Florida for guidance. If these sources are uninformed, inappropriate information can be disseminated. Over time, local and state land grant institutions develop educational materials in the interim, problems may be present as a result of misinformation. Over time, local and state land grant institutions develop educational materials in the interim, problems may be present as a result of misinformation.

In an effort to test these assumptions, we initiated a local task force in Palm Beach, Florida to address the invasive whitefly issues developing on the island where the city of Palm Beach is located. One taskforce in Palm Beach, Florida decided to see if a different method of communication might be more effective. A coordinated multi-agency outreach effort in support of research and development was critically needed to mitigate public perception pertaining to the state of Florida, USDA, and University of Florida's role in managing and responding to invasive species problems. A task force was developed that included the Garden Club of Palm Beach, USDA, Palm Beach Shiny Sheet, the Division of Plant Industry (DACs), the Town of Palm Beach, UF/IFAS, the UF/Palm Beach County Extension, office, and members of the media who helped with outreach. Outreach and educational materials needed deployment, but updates will continually occur as new research developments can be delivered to the public. The synergistic partnership between UF/IFAS, FDACS/DPI, and USDA-APHIS-PPQ will further enhance the overall goal of mitigating and controlling these very destructive pests as the eventual overall programmatic success will be partially dependent upon public opinion.

#### Milestones:

- 1-An appropriate Ordinance was adopted by the city council.
- 2-Garden Club hosted a town meeting where every household in the City (8,000+) received a mailer inviting them to our meeting. This was done at their expense. They

requested one talk to address how they had gotten into this mess. They were astonished by the facts: Florida averages more than 1 or 2 new arthropods becoming established each month, that more than 80% of all flowers imported into the US enter via Miami and that the exponential increase in the number of new pests in Florida can be associated with adoption of international trade agreements.

3- Identified methods to reach and educate professional landscapers and pest management companies (LCO's). This group has historically been very difficult to gain access to. Developed educational programs for this group. (see <http://www.flwhitefly.org>).

4-Trained LCO's in the proper methods for managing invasive whiteflies and developed a system that would allow the general public to find licensed personnel that demonstrated they understood the training. The general public wanted the pests controlled safely using the most appropriate techniques. (see <http://www.flwhitefly.org>).

5- Developed and publicized websites and training materials and made them readily available. The aim was to present as much science based unbiased information as possible in an effort to quell the spread of rumors and misinformation.

6-We had a very little time before people began to get hysterical to begin the educational process. We feel that once the population begins to receive "bad" information and they have become emotional about the subject, education and training is far more difficult. Education concerning controversial subjects, such as those often encountered when managing an invasive pest is severely hampered once the audience becomes emotionally involved. We feel training on what could happen under various scenarios should begin before an invasion. It should be handled as much as possible using local educators or trainers. We see that an excellent model to possibly use for this situation might be the one used by EPA and often called Train-the-Trainer.



**V(A). Planned Program (Summary)**

**Program # 2**

**1. Name of the Planned Program**

Increase agricultural profitability and sustainability

Reporting on this Program

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
111	Conservation and Efficient Use of Water	5%	5%	0%	
112	Watershed Protection and Management	5%	5%	0%	
204	Plant Product Quality and Utility (Preharvest)	10%	10%	0%	
211	Insects, Mites, and Other Arthropods Affecting Plants	10%	10%	0%	
212	Pathogens and Nematodes Affecting Plants	10%	10%	0%	
215	Biological Control of Pests Affecting Plants	10%	10%	0%	
302	Nutrient Utilization in Animals	15%	15%	0%	
307	Animal Management Systems	10%	10%	0%	
308	Improved Animal Products (Before Harvest)	10%	10%	0%	
312	External Parasites and Pests of Animals	10%	10%	0%	
609	Economic Theory and Methods	5%	5%	0%	
	<b>Total</b>	100%	100%	0%	

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Actual Paid Professional	61.4	6.8	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
672403	569982	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
672403	569982	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**

**Brief description of activities**

- Conduct workshops and meetings
- Deliver services
- Develop products, curriculum, resources
- Provide training
- Provide counseling
- Make assessments
- Work with the media
- Develop partnerships

**2. Brief description of the target audience**

**Brief description of the target audiences**

- Producers
- Commodity associations
- Owners/Operators
- Managers/Supervisors
- Workers/laborers
- Allied industry representatives
- Small farmers
- Government/Regulatory
- County government
- State government
- Federal Government
- Tribal Government
- International governing bodies
- Harvesting/Packing/processing/distribution/transporting
- Retailers
- Importers/Exporters
- Youth and 4-H
- Youth educators
- Extension faculty

**3. How was eXtension used?**

eXtension use was not reported for this program

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	842005	1932287	0	0

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

**Patent Applications Submitted**

Year: 2012

Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
<b>Actual</b>	101	0	101

**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 animal management that leads to increased profitability
2	Increasing knowledge concerning effective pest management
3	Increase behaviors that lead to more sustainable bio-energy
4	Increasing behavior that improves effective pest management
5	Increase knowledge related to sustainable bio-energy
6	Change in condition related to sustainable bio-energy
7	Increase knowledge that improves water quality and quantity
8	Increase behaviors that lead to better water quality and quantity
9	Increase changes in positive, wide impacts related to water quality and quantity
10	Increase behavior changes leading to improved profitability and sustainability

**Outcome #1**

**1. Outcome Measures**

Reduce the cost of animal management that leads to increased profitability

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	1115

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

**Issue (Who cares and Why)**

Feed costs represent the largest variable cost in beef cattle operations. For cattle producers to remain as viable economical enterprises, cost will need to be reduced.

**What has been done**

This project investigates feed efficiency in cattle adapted to tropical and subtropical environments.

**Results**

Selection for feed efficiency in beef cattle would lead to less feed consumed by the cow herd, thereby, decreasing production costs for producers.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
302	Nutrient Utilization in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)

## **Outcome #2**

### **1. Outcome Measures**

Increasing knowledge concerning effective pest management

### **2. Associated Institution Types**

- 1862 Research

### **3a. Outcome Type:**

Change in Knowledge Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	32790

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

#### **Issue (Who cares and Why)**

Diseases are a major limiting factor in crop production in the Southeast. The high temperatures and moisture are very conducive to most diseases and their vectors.

#### **What has been done**

This project will develop sound IPM practices for the major diseases of row crops in the Southeast. At present, these are identified as 1) Asian soybean rust (ASR), 2) hardlock of cotton, 3) leaf spot (early and late) of peanut. Other disease of row crops in the southeast (including those caused by emerging pathogens) will be addressed as needed. This project was developed in close cooperation with the Peanut Research Initiative, Cotton Incorporated and North Central Soybean Research Program along with numerous researchers, extension specialists, and row crop farmers in the southeastern United States. The overall goal of this project is to utilize Integrated Pest Management (IPM) practices to help develop economical and environmentally sustainable production systems appropriate for the biological and social conditions of row crop production in the southeastern United States.

#### **Results**

The overall goal of this project is to utilize Integrated Pest Management (IPM) practices to help develop economical and environmentally sustainable production systems appropriate for the biological and social conditions of row crop production in the southeastern United States.

### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
211	Insects, Mites, and Other Arthropods Affecting Plants

212	Pathogens and Nematodes Affecting Plants
215	Biological Control of Pests Affecting Plants
312	External Parasites and Pests of Animals

### **Outcome #3**

#### **1. Outcome Measures**

Increase behaviors that lead to more sustainable bio-energy

#### **2. Associated Institution Types**

- 1862 Extension

#### **3a. Outcome Type:**

Change in Action Outcome Measure

#### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	144

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

##### **Issue (Who cares and Why)**

Despite the great potential of energy cane for biofuel production, seedcane for multiplication is limited. Energy cane cultivar releases are few in number and the major cultivar L79-1002 is susceptible to smut (*Sporisorium scitaminea*), for which there is no economic chemical control.

##### **What has been done**

A cooperative energy cane cultivar development program has recently been established between USDA-ARS Sugarcane Field Station, University of Florida, and the Florida Sugar Cane League to produce high-yielding, disease-resistant energy cane cultivars.

##### **Results**

In 2012 the program partnered with BP to test energycane cultivars at their facility in Highlands County, FL, and three new commercial cultivars are planned for release in 2013.

#### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
204	Plant Product Quality and Utility (Preharvest)

**Outcome #4**

**1. Outcome Measures**

Increasing behavior that improves effective pest management

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	26641

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

**Issue (Who cares and Why)**

The pesticide certification training program designed to help Hispanic agricultural workers is helping the Hispanic community to improve their professional status and economic conditions.

**What has been done**

In 2012, an economic analysis of the estimated salary impact based on average hourly wage of 8 Hispanic pesticide applicators that completed their pesticide certification after taking the pesticide training offered by this extension program.

**Results**

The average hourly wage before pesticide certification was \$8.20, and after completing their pesticide certification, it was \$10.51. The average hourly wage increase before benefits was \$2.31 (28% of \$8.20)

Different per hour:  $\$13.34 - \$10.41 = \$2.93$   
Different per year:  $\$2.93 \times 2,080 \text{ hr/year} = \$6,904$

The total economic impact of the 8 Hispanic pesticide applicators surveyed was as follow:  $\$6,904 \times 8 = \$55,232$

In addition, the survey results showed that out of the 8 Hispanic surveyed 6 were classified living under poverty levels (Department of Health and Human Services? poverty guidelines). The new salary income improved their economic conditions significantly and helped them to overcome the poverty level.



#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
215	Biological Control of Pests Affecting Plants
609	Economic Theory and Methods

#### Outcome #5

##### 1. Outcome Measures

Increase knowledge related to sustainable bio-energy

##### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2012	865

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

###### **Issue (Who cares and Why)**

Brassica oilseed crops such as Brassica carinata have shown tremendous potential for use as a biofuels crop in Florida. The first jet to fly on 100% ?drop in? fuel was flown on carinata oil in late 2012 with the fuel meeting or exceeding all specifications for jet fuel. Some of the first carinata grown in the SE US was produced in Florida in 2012 with yields in the 1500 lb/A range and an oil content of 40+%. Similar management techniques were used on carinata that were developed for the related canola crop several years prior. Carinata appears to grow under more harsh conditions than canola and would be more suitable for drier, more infertile soils or even over seeding pastures as well as planting following crops such as cotton and peanut.

###### **What has been done**

Field days and tours were held in 2012 to educate growers and the biofuel industry in the potential of the crop.

###### **Results**

We are currently working with the company that has the world?s largest germplasm collection of Ethiopian mustard (carinata) to find varieties that are adapted to farming systems of the SE and that have suitable oil characteristics. Varieties may be found that will have as much as 50% oil and can produce as much as 3000-3500 lbs/A of seed which would make the crop very attractive to row crop growers at current prices to grow during the winter months after corn, cotton, peanut

soybean season. The meal from carinata is valuable for livestock feed and is an added value to the oil.

#### 4. Associated Knowledge Areas

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

#### Outcome #6

##### 1. Outcome Measures

Change in condition related to sustainable bio-energy

Not Reporting on this Outcome Measure

#### Outcome #7

##### 1. Outcome Measures

Increase knowledge that improves water quality and quantity

##### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2012	18252

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

###### **Issue (Who cares and Why)**

Dairy producers are one of the leading innovators in the agricultural industry. With the many water and policy regulations they have place upon for operating dairies, they are constantly looking for more efficient, researched based ways of managing their operations. Often times they do not have the time to effectively research the many different management options available.

###### **What has been done**

However, with the strong relationship they have with the Okeechobee Extension Office they confidently look to their Dairy/Water Quality Extension Agent for timely, researched, and sustainable ways to effectively manage their operations. The Okeechobee Extension staff

combined with other county?s agents, UF/IFAS Extension Specialist and Researchers, and the allied industry have sponsored multiple programs and/or workshops aimed at educating dairy producers on improving herd management. In an effort to increase profits by decreasing inputs and maximizing outputs while sustaining the highest water quality standards on their operations.

**Results**

Since 2009, over 250 dairy producers have participated in Okeechobee County Dairy/Water Quality Extension programs. Pre-and Post-test evaluations indicated that 100% of the participants experience an average of 35% increase in knowledge of dairy herd management principles and 97% of participants indicated that they plan to implement or change current production practices. By implementing improved dairy herd management practices that best match their operations; these participants should experience an increase in profits, herd health, and sustainability of land and water resources. The agent plans to continue and expand dairy programs in Okeechobee County.

**4. Associated Knowledge Areas**

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

**Outcome #8**

**1. Outcome Measures**

Increase behaviors that lead to better water quality and quantity

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	15752

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

**Issue (Who cares and Why)**

Homeowners in developed areas of the upper Braden River Watershed are seeking answers to their neighborhood stormwater pond problems. These issues include nutrient loading, algal blooms, invasive plants,

fish kills, and shoreline erosion. Finding solutions to these stormwater pond issues in this watershed could provide a model for homeowners facing similar problems around the state.

**What has been done**

These artificial ponds are designed to remove rainfall from streets and yards but the water is often polluted by excess lawn fertilizer and chemicals. The resulting growth of algae is considered unsightly and has a negative effect on home values. Treatment alternatives are becoming more costly and less effective and there is potential harm for watersheds downstream. Homeowners are partly to blame for these issues because of the way they manage their turfgrass landscapes. The partnership includes homeowners, landscape contractors, turf industry representatives and property managers. Faculty established two advisory boards in large developments of regional impact. They cover more than 3,000 homes and contain nearly 300 stormwater ponds.

**Results**

The formation of the advisory boards and the interest by residents in landscape issues is a positive indicator that some residents are engaged and willing to take action on the issues of fertilizer runoff. With neighborhood volunteers, we planted a demonstration garden to show alternative ways to landscape shoreline ponds and reduce the risk of nutrient runoff. Expected impacts will be an increase in the area of planted shorelines and littoral zones of stormwater ponds and a reduction in the amount of fertilizer run-off into the stormwater system. In Phase II of the project in 2013, residents will be surveyed to measure changes in their awareness of stormwater pond function as well as awareness and adoption of specific nutrient BMPs that affect water quality.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management

### **Outcome #9**

#### **1. Outcome Measures**

Increase changes in positive, wide impacts related to water quality and quantity

Not Reporting on this Outcome Measure

### **Outcome #10**

#### **1. Outcome Measures**

Increase behavior changes leading to improved profitability and sustainability

#### **2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

#### **3a. Outcome Type:**

Change in Action Outcome Measure

#### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	750

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

##### **Issue (Who cares and Why)**

Florida Small Farm Conference

The 4th annual Florida Small Farms and Alternative Enterprises Conference was held at the Osceola Heritage Park (OHP) in Kissimmee, Florida on July 27-29, 2012. The team has a comprehensive strategy for fund-raising, publicity, farmer recognition, educational program development, and resource management. The event attracted over 750 attendees of whom 74% described themselves as current or prospective farmers/ranchers, 4% were allied industry representatives, and 14% were educators, researchers, or students. This year's conference comprised 2 farm tours, 36 educational sessions with over 100 speakers, 93 display exhibits, 18 educational posters, and 9 live animal educational exhibits. The 5th annual event will be held August 2-4 in 2013 at the OHP.

New improvements were made this year in response to formal and informal meetings throughout the year including formal event evaluations, meetings with our stakeholder advisory committee, and suggestions from past and future attendees, speakers, and event chairs. Changes included:  
?Expanded educational programming on Friday  
?Improved preconference farm tours (more in-depth with more time and fewer stops)  
?New educational tracks including Hydroponics and Beginning Farmer and Rancher

- ?Expanded in-depth Sunday sessions that focus on hands-on interactive learning
- ?Poster competition (12 poster entries)
- ?Keynote speaker Michael Shuman
- ?Saturday evening social featuring on-site cooking demonstrations from celebrity chefs featuring FL food

The Florida Extension Small Farm Conference has been growing each year in Florida. A better evaluation plan was required to see what needed to be done to increase knowledge and participant action to change to increase profitability and sustainability.

### **What has been done**

A formal evaluation plan, designed and executed by our evaluation specialist Sebastian Galindo-Gonzales, was realized this year and summarized by Rob Kluson. In general, the majority of evaluation participants (63%) were first-time conference attendees. Most respondents (86%) have the intention to attend the conference again in the future.

### **Results**

As general results of attending the conference, participants reported a significant gain of confidence to:

- ?perform future activities related with skills that may have been affected by participation in the conference (level of confidence = 4.3 in a 0-5 scale; with 0= not at all confident and 5 = completely confident); and
- ?find important additional small farming resources, such as information (4.7), supplies (4.2), services (4.3), networking (4.3), and opportunities (4.2; all levels in a 0-5 scale);

Evaluations of the Friday preconference workshops showed that a very high percentage (92%) of participants increased their overall knowledge (with an indicated learning knowledge index ranging from ?some? to ?a lot?). Specifically, a high to very high percentage of participants responded positively to:

- ?preparing for food safety audits (96%) with 58% indicating plans to establish standard operating procedures and worker safety programs based on this information;
- ?building capacity of local food systems (92%) with 57% learning specific new resources from the information; and
- ?starting and managing successful farmers markets (90%) with 65% learning specific new resources from the information;
- ?community gardens (77%) with 51% planning to start one within 12 months; and
- ?FL Farm to School programs (71%).

Evaluations of the Saturday sessions also demonstrated that a very high percentage (95%) of participants obtained learning knowledge at levels ranging from ?some? to ?a lot?. Specifically, a high to very high percentage of participants responded positively to the information on

- ?beginning farmers & ranchers (98%) with 72% indicating plans to implement the specific production & marketing aspects of this information;
- ?organic and sustainable agriculture (97%) with 66% indicating plans to implement the specific production & marketing aspects of this information;
- ?the business of farming (96%) with 80% indicating plans to implement the specific strategies of this information;
- ?hydroponics (94%) with 67% indicating plans to implement the specific production & marketing aspects of this information; and
- ?livestock (82%) with 65% indicating plans to implement the specific production aspects

Similarly, the Sunday workshops were perceived as valuable educational sessions. A high to very high percentage of participants responded positively and indicated they planned to adopt new practices:

?insect identification (97%);

?edible mushroom production (96%) with 61% indicating plans to adopt practices

?Hydroponics 101 (96%) with 88% indicating plans to adopt practices

?renewable energy (96%) with 60% indicating plans to to adopt practices

?pastured poultry (95%) with 63% indicating plans to initiate production and marketing practices

?cottage food industry (87%) with 62% indicating plans to initiate production based on this information;

A final highlight was the very positive post-conference news coverage in the Ticket Sarasota on August 6, 2012, by Cooper Levey Baker from the Herald Tribune. The entire article, entitled ?Farm Fresh: The Florida Small Farms Conference celebrates local food,? can be found online at <http://ticketsarasota.com/2012-08-06/section/dining/small-farms-alternative-enterprises-conference/>.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
204	Plant Product Quality and Utility (Preharvest)
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Pathogens and Nematodes Affecting Plants
215	Biological Control of Pests Affecting Plants
302	Nutrient Utilization in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
312	External Parasites and Pests of Animals
609	Economic Theory and Methods

#### V(H). Planned Program (External Factors)

##### External factors which affected outcomes

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

##### Brief Explanation

Florida is still being heavily impacted by the economic situation. Public higher education in Florida has lost more than 50% of state funding and has been impacted by other losses caused indirectly by the economic down turn. Issues related to Medicaid are also expected to impact us heavily. Changes in state, county and federal appropriations can also affect the outcomes related to the Florida land-grant mission. Because of limited resources in Florida and continuing devolution Extension programs can always be affected by changing public and governmental priorities. These can include appropriations.

Natural and national disasters can also affect the number of volunteers available to work with youth. Florida is a state located in the tropics. Natural disasters such as tropical storms and hurricanes are common annual occurrences in this state. Severe weather conditions such as droughts frequently led to large-scale fires. We also have other weather extremes such as floods leading to large scale damage especially along the coastal regions. All of these can have a direct and indirect impact on Extension programs.

## **V(I). Planned Program (Evaluation Studies)**

### **Evaluation Results**

Florida Cooperative Extension (UF/IFAS and FAMU/CAFS) is actively working to provide research- based knowledge that will continue to expand the profitability and sustainability of agriculture. Profitability and sustainability have been identified as very important in the state of Florida for agriculture industry. As the winter garden for the world this is an area in which Florida plays a major role and so a good deal of extension communication and education takes place in this area along with global security and the reduction of hunger. In particular small farms have become important in the state in providing healthy local food at a good price for local consumers. Our Commissioner of Agriculture has also played a role in making foods healthier in schools for youth and is working with Florida agriculture and Extension to be sure the best local food reaches youth at the same time providing a good price to the farmer for his goods. Over 47,722 people increased their knowledge in agricultural and natural resource industry profitability and the sustainable use of environmental resources. 15,319 of those surveyed in this area changed their behaviors and 7,664 across the state had major impacts on their communities by making changes in the area of sustainability and profitability.

### **Key Items of Evaluation**

**FAMU-** The United Nations General Assembly endorsed a decision to accredit several organizations to the 2012 United Nations Conference on Sustainable Development. These accredited organizations were found to exhibit the necessary attributes of an organization demonstrating expertise in an area of sustainable development relevant to the UN Conference. FAMU Statewide Small Farm Programs was one of the organizations that received distinction and accreditation to participate in the global 2012 United Nations Conference on Sustainable Development.

**IFAS-** Energy cost, availability and options, continues to be a topic of great interest to producers of general and specialty agricultural commodities from large scale production to small farms. Alternative energy technology applications for solar, biomass, anaerobic digestion, for biofuel or heat generation, or electrical production are all of interest to residents and producers. The spectrum of alcohols for renewable fuels (ethanol, methanol, butanol) and their feed stocks have all been educational opportunities for the land grant research and extension mission statewide. Technologies necessary to make these options



practical to small and large scale producers are challenges land grant universities across the nation and southeast in particular are charged with addressing.

The UF/IFAS Center for Renewable Fuels and Chemicals and Dr. Lonnie Ingram have partnered with the paper industry in North Florida and have provided numerous educational contacts and provided numerous educational events and tours pertaining to ethanol production from cellulose (numerous campus and county extension faculty). Production of biogas (methane) is an active mobile extension demonstration from Dr. Ann Wilke's effort's that has toured the Florida and Georgia. In Taylor County, extension is using a modified 1995 Dodge Dakota demonstrating the gasification of wood for use in transportation. This vehicle traveling at highway speeds, consuming 1 lb. of truss plant waste (pine) per mile, this vehicle can travel 2000 miles for a fuel cost of \$20.00.

Various Solar technologies being demonstrated include thermal water heating for residents and greenhouses, solar panels used for electrical energy production for residential use and remote livestock watering in several locations by UF/IFAS Faculty.

Plant selection for biofuels production is under the research and extension energy efforts. Species being considered vary from Switch grass and energy cane for ethanol production, to *Jatropha* genetic selection for biodiesel production.

**V(A). Planned Program (Summary)**

**Program # 3**

**1. Name of the Planned Program**

Maintain, Conserve and Enhance Florida's Natural Environment

Reporting on this Program

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
103	Management of Saline and Sodic Soils and Salinity	10%	0%	0%	
104	Protect Soil from Harmful Effects of Natural Elements	10%	0%	0%	
111	Conservation and Efficient Use of Water	20%	0%	0%	
112	Watershed Protection and Management	10%	0%	0%	
132	Weather and Climate	20%	0%	0%	
133	Pollution Prevention and Mitigation	10%	0%	0%	
135	Aquatic and Terrestrial Wildlife	20%	0%	0%	
	<b>Total</b>	100%	0%	0%	

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	20.0	1.0	0.0	0.0
Actual Paid Professional	40.6	0.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
444980	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
444980	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

**Environmental Education**

1. Conduct needs assessment
2. Develop collaborative meetings/working partnerships/advisory committees
3. Write grants
4. Develop inservice/training programs for different audiences using
  - face to face field institutes
  - distance learning (web-based, podcasts, video conferences, polycom, etc.)
5. Establish Extension EE webpage
6. Develop educational materials for EE
7. Assist in development of educational events in EE for youth, volunteers, public, etc. at state, district, and/or county level.
8. Support and assist in assessing impacts of EE programs (in Extension) at state and county level.

**2. Brief description of the target audience**

Citizens of the state  
Tourism industry

youth  
 Tourists  
 Fisherman, hunters  
 Wildlife organizations  
 conservationists  
 government and regulatory agencies

**3. How was eXtension used?**

eXtension use was not reported for this program

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	543803	1247953	0	0

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

**Patent Applications Submitted**

Year: 2012  
 Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
<b>Actual</b>	55	0	55

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

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

**Outcome #1**

**1. Outcome Measures**

Change in Knowledge Water Resources

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	2700

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

**Issue (Who cares and Why)**

Watersheds Don't Stop at County Lines

The Water Wars of the 1970's were the first indication of a real issue with the supply and demand of the water resources in the Tampa Bay area. With populations in Pinellas, Pasco and Hillsborough counties continuing to rise 18,917, 7,088 and 43,176 respectively between 2000 and 2011, water resource allocation will continue to be a topic of interest.

**What has been done**

On September 11th and 12th, 2012, a mix of 45 community leaders, natural resource managers, and decision makers from Pinellas, Pasco, and Hillsborough Counties attended a two-day Tri-County Water School facilitated by Pinellas, Pasco, and Hillsborough Extension Faculty. The School focused on educating participants on current issues and future concerns regarding water quality, quantity, and conservation. This was accomplished through presentations from the Southwest Florida Water Management District and the University of Florida Water Institute, an interactive panel of experts from the University of Florida, Tampa Bay Water, Pinellas County Watershed Management, Southwest Florida Water Management District, Tampa Bay Estuary Program, and Keller Water Treatment Plant, as well as a hands-on, interactive watershed activity on Day 1 followed by field tours of the Keller Water Treatment Plant and Tampa Bay Seawater Desalination Plant on Day 2.

**Results**

Post evaluations (n=42) of Day 1 and Day 2 (n=28) completed by participants of the Tri-County Water School indicated 100% of respondents increased their knowledge of regional water issues, water treatment and water sources. 79 % of respondents indicated their policies or practices will

be (16) or might be (17) altered and 79% said they were likely (18) or very likely (15) to implement at least one water conservation technique. 96% of respondents indicated the field trips added to their general understanding of critical water issues in the Tri-County area. Participation in the Streamline Shuffle watershed activity had responses such as, "That was the highlight of the day. It is a great tool to illustrate peoples' impacts on a shared body of water?" and "A neat opportunity to think big picture. I think this is great for any age or audience. Nice work!"? A few additional comments included, "Loved it and hope you do more sessions like it in the future?" and "Great tours, fabulous facilities, please continue to offer this wonderful program!"

#### 4. Associated Knowledge Areas

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

#### Outcome #2

##### 1. Outcome Measures

Change in Behavior Water Resources

##### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2012	604

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

###### **Issue (Who cares and Why)**

Understanding water management techniques can provide savings in the pocket book as well as less water being pumped.

###### **What has been done**

283 participants have attended at least one of 16 water management workshops (53 in 2012, 89 in 2011, 141 in 2008-2010). 182 rain barrels have been installed by participants and clients.

###### **Results**

Of the 53 participants of one of 3 workshops in 2012, 41%(22) responded to a follow-up on-line

survey sent out 4 to 6 months after the event. 86% of those respondents reported having adopted at least one new water management technique, including 25% installing rain barrels, 41% constructing composting units to produce soil amendments and 59% adding two inches of mulch to plant beds to conserve water.

#### 4. Associated Knowledge Areas

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

#### Outcome #3

##### 1. Outcome Measures

Change in Condition Water Resources

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Condition Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2012	173

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

###### **Issue (Who cares and Why)**

One large golf course and country club in Marion County is a great example of a collaborative effort to conserve water.

###### **What has been done**

A team effort among the homeowners' association, the utility, the St. Johns River Water Management District, UF/IFAS Extension, the garden club, and the residents, resulted in a 40 percent water savings in two years. The association changed its covenants to allow less turf? a minimum of 50 percent in the yard, and they began to allow rain barrels. The utility moved to a one-day per week watering rotation and ran an aggressive water conservation education program. The garden club distributed stickers as reminders about the watering days to roughly half of the 3,600 households and helped residents set irrigation controllers. The garden club also established a Florida-Friendly demonstration garden. The extension agent continues to conduct education classes each month. The utility is pursuing use of reclaimed water for irrigation.

###### **Results**



This has reduced per person water usage from 471 gallons to 139 gallons annually.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
103	Management of Saline and Sodic Soils and Salinity
104	Protect Soil from Harmful Effects of Natural Elements
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
132	Weather and Climate
135	Aquatic and Terrestrial Wildlife

#### Outcome #4

##### 1. Outcome Measures

Change in Knowledge Sustainable Use of Freshwater and Terrestrial Ecosystems

##### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2012	5927

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

###### **Issue (Who cares and Why)**

Hydrilla is a serious issue in Florida waterways and lakes.

###### **What has been done**

We developed a target audience needs assessment tool to provide local insight on perceptions of hydrilla. After gaining UF Institutional Review Board approval for the assessment we worked to obtain the maximum response rate to the needs assessment survey. We used the survey responses to prioritize our development of material to support this project.

A website has been created for the project at <http://entomology.ifas.ufl.edu/hydrilla>. We included pages on Extension, Research, Resources, FAQ, Team Members, Events, Links, etc. We will continue to update and add to the website as the project progresses.

### Results

Since its inception in 2011 there have been over 12,000 individual user page views recorded on this site. In addition to our local project website we are partnering with the eXtension Invasive Species Community of Practice to deliver material to a different audience. The eXtension website is supported by a nationwide network of extension specialists. Our work and IPM plan will be posted on eXtension as it becomes available. Our first guest article was published in April of 2012.

In order to raise awareness about the Hydrilla IPM project and our project website, we created several promotional items including webcards, ruler bookmarks and fish ruler stickers. Each of these items includes the project website address and a QR (quick response) code that can be scanned with a smart phone. We distributed packets of the promotional items to Extension faculty from each county at the 2011 statewide Extension Professional Associations of Florida conference held in Lake Buena Vista, FL, 29 August-1 September. County faculty will be able to use these tools to influence more diverse audiences focusing on new strategies to enhance IPM. We also created a pull-up banner and poster display to use at various meetings, conferences and events to advertise our project. We displayed these at a table-top display at the annual statewide Extension Professional Associations of Florida conference. We will track the use of this material and distribute additional material to augment program implementation with the complete IPM program available in 2014.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
135	Aquatic and Terrestrial Wildlife

#### Outcome #5

##### 1. Outcome Measures

Change in Behavior Sustainable Use of Freshwater and Terrestrial Ecosystems

##### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2012	2026

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

**Issue (Who cares and Why)**

At the Everglades REC specialists have evaluated fertilizer management strategies for crop production on muck soils.

**What has been done**

Different field experiments conducted on grower farms tested efficacy of silicon and nitrogen amendments for lettuce production. Amendments failed to increase lettuce yield, indicating that growers were following best management guidelines with respect to these amendments.

**Results**

Further trials evaluated phosphorus amendments, and confirmed that rates of phosphorus fertilizer necessary for optimal crop yield were higher than currently recommended. Growers gained knowledge of use of higher phosphorus fertilization rates to improve yield, while knowing that no additional changes to silicon and nitrogen management were needed.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
111	Conservation and Efficient Use of Water
135	Aquatic and Terrestrial Wildlife

**Outcome #6**

**1. Outcome Measures**

Change in Condition Sustainable Use of Freshwater and Terrestrial Ecosystems

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	281

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

**Issue (Who cares and Why)**

During 2012 I completed the applications of the Everglades Landscape Model (ELM) to evaluate water quality constraints associated with an Everglades restoration project - the

Decomartmentalization of Water Conservation Area 3A (DECOMP, Phase 1) project.

The conclusions from the ELM applications were used to make State and Federal agency decisions on the management and restoration of the Everglades landscape, significantly impacting the methodology that agencies use in that decision-process.

**What has been done**

The audience for these analyses was Federal and State scientists, engineers, and managers on the technical team(s) that are developing the plans and evaluations for the DECOMP and related Everglades restoration projects.

**Results**

The conclusions from the ELM applications were used to make State and Federal agency decisions on the management and restoration of the Everglades landscape, significantly impacting the methodology that agencies use in that decision-process.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
111	Conservation and Efficient Use of Water
135	Aquatic and Terrestrial Wildlife

**Outcome #7**

**1. Outcome Measures**

Change in Knowledge Environmental Education

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	12047

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

**Issue (Who cares and Why)**

At least 100 citizens will volunteer a minimum of 500 hours to cleanup the coastal environment,

develop outreach and education materials, and promote marine extension activities at community events. This will be evaluated through tracking hours worked on volunteer service projects and other community outreach events.

**What has been done**

Outcomes: 77 community volunteers donated 628.5 hours to coastal cleanup events, environmental restoration projects, the development of education and outreach materials, and program assistance.

Impacts: Through first-hand experience with marine debris, participants will be empowered to correctly modify their behavior to minimize negative human-induced impacts to the environment. Volunteers, with increased knowledge and experience, will be likely to spread their knowledge gain to fellow residents resulting in potential secondary benefits. A healthier marine environment can result in more enjoyable recreational opportunities for residents and visitors which will result in economic benefits to the local economy.

**Results**

Success Story: Ohio Buck-I-Students dedicate efforts to Florida

In the past several years, the economic downturn has caused budget cuts at the county and state levels. Where there were once abundant county employees to accomplish maintenance and restoration efforts at the Parks and Preserves of Pinellas County, today the county increasingly reliant on the efforts of volunteers. In December 2011, 10 dedicated students from Ohio State University (OSU) BUCK-I-SERV Program (Students Engaged in Responsible Volunteering) headed south to Pinellas County, Florida for a week of service with the Pinellas County Sea Grant Extension Agent. The students learned about nearshore and coastal habitats of Tampa Bay and the Gulf of Mexico and local wildlife and social marine issues. The training included classroom seminars, an education center scavenger hunt, fish printing, seining for fish and invertebrates, and other teachable moments in the field. In a practical use of their new knowledge and skills, the students assisted with invasive plant removal and coastal cleanups. While it was the first time many of them had used a machete or bow saw, the students were enthusiastic to learn new skills and put them to work. The group removed Australian pine and Brazilian pepper trees from approximately 20 acres of Weedon Island and Shell Key preserves in Pinellas County. On the beach and in the mangrove forests, the students collected six bags of debris, weighing approximately 135 pounds. In all, OSU students dedicated 320 hours of valuable service. As evidenced by an assessment, all students increased their knowledge, with an average of 34% increase in post-test scores compared to pre-test. In the evaluations, all participants said that they would recommend this program to fellow students. A testimonial from this year's participants is available online at <http://youtu.be/f1B2DeFHkV0>.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
111	Conservation and Efficient Use of Water
135	Aquatic and Terrestrial Wildlife

**Outcome #8**

**1. Outcome Measures**

Change in Behavior Environmental Education

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	3076

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

**Issue (Who cares and Why)**

There is a need for Florida citizens to learn how to learn improve the economic, environmental and social environment in Florida communities.

**What has been done**

In two years, the Sustainable Floridians program in Pinellas County has trained 66 participants as part of the statewide training initiative. Participants learn how to improve the economic, environmental and social sustainability of their communities. The 7-week training session is both educational and action oriented with participants learning about Florida specific actions for conserving energy and water. Each participant also receives sustainable living devices to encourage practice change (e.g. rain barrels, power strips, LEDs). Participants also explore opportunities for community level leadership while promoting the Extension service.

**Results**

After graduation, participants continue to be mentored by Extension faculty through monthly meetings that examine sustainability issues at the local and regional level. Graduates of the program have shared personal stories about the merits of the program, are energized and inspired to become more engaged with sustainability, and are immensely gratified to network with others who share a similar passion for sustainability. Overall, the participatory structure of the program continues to educate and engage graduates who are motivated to improve the triple bottom-line of their communities.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management

**Outcome #9**

**1. Outcome Measures**

Change in Condition Environmental Education

Not Reporting on this Outcome Measure

**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**

<b>Year</b>	<b>Actual</b>
2012	3503

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

**Issue (Who cares and Why)**

Current projects focus on continuing long-term, science-based, GIS/GPS integrated, research, and education programs to support ecological restoration and management efforts in South Florida. International projects aim to apply lessons learned from research in South Florida to analogous ecosystems in the Caribbean. Crocodylians are indicator species in the Everglades landscape, and are being used as indicators of ecosystem response to restoration plans. Results from long-term research and monitoring projects on American crocodiles and American alligators in Florida are being used by the US Department of the Interior and US Army Corps of Engineers to evaluate and assess restoration plans and projects. Results of a decision support/ landscape modeling program have been used to guide selection of alternatives for the Comprehensive Everglades Restoration Plan (CERP). This effort has allowed decision-makers to choose alternatives most effective at meeting ecological goals of CERP at minimum cost.

**What has been done**

Working cooperatively the Florida Fish and Wildlife Conservation Commission, South Florida Water Management District, and Zoo Miami we have established the first early detection and rapid response network for invasive species in Florida. Once the best restoration alternatives are chosen, the next important task is to determine the success of restoration efforts. Projects encompassing wildlife habitat relations provide baseline information and reliable methods for monitoring ecosystem responses to ecological changes.

**Results**

Information from studies of pythons is already having a profound effect on the evolution of management and control plans in Everglades National Park.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
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

Not Reporting on this Outcome Measure

**Outcome #12**

**1. Outcome Measures**

Change in Condition Sustainable Use of Coastal and Marine Ecosystems

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	704

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



**Issue (Who cares and Why)**

The Florida bay scallop all but disappeared from SW Florida waters in the 1980s. In recent years, bays scallops have been seen in greater numbers in southwest Florida, magnifying the need to document their current status, initiate restoration efforts where appropriate and monitor for recovery.

**What has been done**

The agent is working with agency and non-profit partners to involve citizens in the bay scallop recovery efforts. Sea Grant volunteers participate in an annual Pine Island Sound Scallop Search, a no-harvest events that teach residents and visitors about active field research and the importance of the bay scallop.

**Results**

In August of 2012 over 270 volunteers on 74 vessels participated in searches in Lemon Bay, Gasparilla Sound and Pine Island Sound and counted 424 scallops. These searches complement similar searches in Tampa Bay and Sarasota Bay and use the same methods to ensure uniformity across Southwest Florida. Having standardized methods allow researchers to compare data collected from year to year, site to site and bay to bay. The goal of this project is to develop a regional and long-term picture of scallop distribution and abundance in area waters. The results of the searches and other Sea Grant coordinated scallop projects have been wide-reaching. Agents have provided bay scallop, seagrass ecology and field research methods training and demonstrations to over 1300 people since 2009. Over 50 media outreach publications have been produced as a result of Sea Grant's bay scallop outreach efforts. Results of the scallop search and other efforts have been used to determine site suitability for larval release restoration efforts. Two larval releases were executed in Sarasota Bay in 2012 and an additional two to four releases are planned in Charlotte Harbor. Sea Grant created SW Florida bay scallop working group has been formed to gives scientist and educators from FWC, county governments, nonprofits, commercial hatcheries and Sea Grant a chance to discuss local bay scallop efforts for better collaboration at a regional scale. The group is also working to develop a consistent educational message regarding bay scallop status and restoration potential in SW Florida. As a result of the formation of a SWFL Bay Scallop working groups two scallop restoration projects have occurred and at least two more are on target to occur before the end of 2012. Restoration projects were delayed due to water quality issues and red tide. The restorations planned for Charlotte will be led by the Sea Grant agent and a FL Fish and Wildlife Conservation Commission biologist, and involve trained volunteers. The working group has begun creating a uniform educational and policy message through the increased coordination of scientists and educators. It is hoped that a common voice on a regional scale will result in increased funding for scallop restoration.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
111	Conservation and Efficient Use of Water
135	Aquatic and Terrestrial Wildlife

## **V(H). Planned Program (External Factors)**

### **External factors which affected outcomes**

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

### **Brief Explanation**

Florida is still being heavily impacted by the economic situation. Public higher education in Florida has lost more than 50% of state funding and has been impacted by other losses caused indirectly by the economic down turn. Issues related to Medicaid are also expected to impact us heavily. Changes in state, county and federal appropriations can also affect the outcomes related to the Florida land-grant mission. Because of limited resources in Florida and continuing devolution Extension programs can always be affected by changing public and governmental priorities. These can include appropriations.

Natural and national disasters can also affect the number of volunteers available to work with youth. Florida is a state located in the tropics. Natural disasters such as tropical storms and hurricanes are common annual occurrences in this state. Severe weather conditions such as droughts frequently led to large-scale fires. We also have other weather extremes such as floods leading to large scale damage especially along the coastal regions. All of these can have a direct and indirect impact on Extension programs.

## **V(I). Planned Program (Evaluation Studies)**

### **Evaluation Results**

Finding ways to maintain, conserve and enhance Florida's natural environment is very important to the people of Florida as shown in a recent grassroots strategic plan. Florida UF/IFAS Extension works hard to find solutions to the problems that impact the natural environment and along the coastline. This year we surveyed 24,926 people who increased their knowledge in managing, conserving and enhancing Florida's natural environment. 6,975 people made changes in their behavior that had positive impacts on the environment and 704 people attending extension educational programs made a wider impact on their communities in environmental areas. Some of our faculty also influenced regulatory decisions and policies in the state of Florida as well as in other states.

Areas of particular concern that were impacted included water resources, the sustainable use of freshwater and terrestrial ecosystems, environmental education, the sustainable use of coastal and marine ecosystems and changes related to climate variability and change.

### **Key Items of Evaluation**

Success Story: LORAN-C service was discontinued February 2010, yet Bay County continued to report reef locations on official website only in LORAN. Mathematical conversion from LORAN to GPS coordinates is inaccurate. Erroneous reef information and

coordinates frustrated boaters, expending additional hours and fuel searching for reefs that have been misreported, moved, or no longer existed. Published reef data needs to reflect current condition and exact location.

Bay County Sea Grant Advisory Committee suggested an interactive website for local artificial reefs where users could share their observations and experiences with the public. Florida Sea Grant Communications helped create website policies for comments, video, and image sharing. UF-IFAS IT provided PHP code to manage and update our WordPress site hosting information on over 240 public reefs. The Bay County Agent provided training information to area diving and fishing clubs, and through strategic partnerships with the BOCC, Panama City Beach TDC, Mexico Beach Artificial Reefs Association. Additionally, the website has been promoted through television, newspaper, and newsletters. Informational flyers with QR-codes link smartphones to a mobile version of the website have been share with area businesses.

Sept 2012, Bay County BOCC provided a direct link to the new website which is moderated by the Sea Grant Agent. ESRI embedded maps, photos, and YouTube videos provide an enriching interactive experience. Discussion with individual users and groups is providing increased communication and direction for reef monitoring efforts.

Monitoring Bay County's reef sites and providing accurate locations to the public, using a grassroots approach, is a fraction of the initial deployment costs.

**V(A). Planned Program (Summary)**

**Program # 4**

**1. Name of the Planned Program**

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

Reporting on this Program

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
806	Youth Development	100%	100%	0%	
	<b>Total</b>	100%	100%	0%	

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	60.0	3.0	0.0	0.0
Actual Paid Professional	93.1	3.8	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
1020387	335284	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
10203870	335284	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

**V(D). Planned Program (Activity)**

1. Brief description of the Activity

**Life skills developed in youth through subject matter experience**

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.

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 partnerships

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

-Project training workshops/seminars will be held.

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

## **2. Brief description of the target audience**

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

- Teens (14-18) in the 4-H program
- Adults interested in engaging in positive youth development

**3. How was eXtension used?**

eXtension use was not reported for this program

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	0	0	872374	2991979

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

**Patent Applications Submitted**

Year: 2012

Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
<b>Actual</b>	13	0	13

**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

**Outcome #1**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	116908

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

**Issue (Who cares and Why)**

One hundred and forty seven 4-H youth participated in the National Youth Science Experiment in 2012 in two countries.

**What has been done**

88% (n=34) believed that the experiment made them more interested in science.

67% (n=34) of the youth surveyed stated that the experiment helped them ?some or a lot? ? to learn how to use science to solve problems.

88% (n=34) of the youth surveyed stated that the experiment helped them ?some or a lot? ? to like science more.

64% (n=34) of the youth surveyed stated that the experiment helped them ?some or a lot? ? to want to learn more about science.

44% (n=34) of the youth surveyed stated that the experiment helped them ?some or a lot? ? to want to become a scientist.

**Results**

IMPACT: In 2012, Florida?s Governor Rick Scott challenged Florida Universities to produce more graduates in the science and technology fields. Research by Dr. Robert Tai suggests that student



interest in science by grade eight is a more accurate predictor of whether or not they will pursue a science related career than their academic performance in science related subjects. Furthermore, Dr. Tao's research suggests that a non-formal science education is more likely to increase student's aspiration towards science-related degrees and career choices. The National Youth Science Day experiment is a prime example of a non-formal educational 4-H activity where 88% of the participants believed that the experiment made them more interested in science.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

#### Outcome #2

##### 1. Outcome Measures

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

##### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2012	53712

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

###### **Issue (Who cares and Why)**

Success Story: The area of life skills in 4-H youth is a large area of responsibility. There are several youth, who in the past year have taken that meaning of learning life skills to a new level, with one youth in particular.

###### **What has been done**

This youth in the County 4-H Program started the 2011 - 2012 4-H year as a shy, soft-spoken teenager. The individual was taken to her first overnight weekend event in January with two other club members. This young teenager was very distraught over the episode and upset she was homesick for her family. The other two club members took that young teenager and encouraged her to explore and participate in the weekend's events and meet new friends. After watching this group of teenagers interact with others during this weekend-long event, they left happy, full of ideas, and with new contacts throughout the state was an excellent observation of life skills being learned.

**Results**

The once homesick teenager has taken that new found self-worth, responsibility and respect for others and went on to attend Congress and Legislature Week alone this past summer. This teenager has also stepped up within her club to become the new secretary and now encourages the younger members to expand out of their comfort zones. Within the county-level, this youth has become the ambassador for what life skills can be learned through 4-H and how they can help a person become a better, informed citizen. This youth has also taken the next step in 4-H and joined the 4-H State Executive Board and represents our County.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
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**

<b>Year</b>	<b>Actual</b>
2012	27301

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

**Issue (Who cares and Why)**

75% of community club members will develop leadership skills by teaching and helping others, participating in community club meetings and activities, by holding offices in their respective clubs, and/or participating in County and District Council as evidenced by attendance records and an ex post facto survey.

**What has been done**

Outcomes:

There were 288 youth enrolled in Alachua County 4-H in 2012. Each club (n=15) elected club officers and participated in community service projects. The average attendance record for clubs

was 63%. 4-H?ers reported they liked being part of a club because they were able to meet others their age and to do 4-H project together. County Council was represented by 6 clubs with an average of 29 members per meeting. No youth participated on District Council.

### **Results**

100% (n=15) elected 4-H Club officers. 4-H members who held office reported an increase in parliamentary procedures and leadership skills. 4-H club officers preside over club meetings, plan and implement club educational programs and community service projects. The 4-H Agent conducted club officer training for two clubs, where participants demonstrated and increase in parliamentary procedures and demonstrated leadership skills by conducting mock meetings.

### **Impact:**

Astroth (1996) explains that 4-H clubs are effective in helping youth develop critical life skills such as decision-making, responsibility, interpersonal skills, a service ethic, and social skills, as well as emphasizing developing practical and technical skills. Trained volunteers work with club members to help them achieve goals, increase and enhance life skills, and become productive and positive citizens.

## **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
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**

<b>Year</b>	<b>Actual</b>
2012	11099

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

**Issue (Who cares and Why)**

FAMU:

\* In Leon County, Post club evaluations reflected 80% of 4-H youth(n=93) in clubs gained skills in leadership, communication, and teamwork as a direct result of 37 4-H club leaders receiving their official club charter empowering them to function as a 4-H Club.

**What has been done**

\* Results of all completed paperwork and regular attendance at leader training sessions shows 100% of all 13 Leon County club leaders and co-leaders have been screened and trained in 4-H program policy and procedures

\* Testimonials from 85% of 64 youth that received officer training stated they gained skills in self-responsibility, personal competencies, and respect and consideration for others. These skills are part of 4-H Essential Elements needed for youth to become productive citizens.

\* Results from evaluations from 11 teens that served on banquet planning committee reflected an 87% increase in planning and coordinating an activity. 90% reported these skills have helped them in school assignments and have helped them in following through with class projects.

**Impact**

As a result of completing the Leon County 4-H club chartering process, 24 clubs are recognized as official 4-H Clubs and are legally authorized to use the 4-H name and emblem. This also allows donors to make tax deductible donations and contributions to the 4-H program and receive proper credit

**Results**

\* Testimonials by 7 minority club leaders increased their knowledge by 95% of 4-H opportunities, mission of 4-H, how to enroll as a leader, and what resources are available for 4-H clubs.

\* Testimonials by 5 minority club leaders reported 68 minority youth developed positive relationships with each other and avoided risky behaviors as a result of them signing up and becoming active members of Leon County 4-H Clubs.

\* Fifty percent of Florida A&M Students students(n=42) are interested in pursuing a career in extension as a result of presentation by agent and serving as a volunteer at 4-H events.

**Impact**

As a result of classroom orientations with Florida A&M animal science students, 42 college students served as group leaders for 4-H agricultural judging during the North Florida Fair. Program Impacts of Organizational Strategies in Leon County Youth

Due to 4-H clubs being chartered over 90 4-H club members were provided a safe environment to grow and be successful.

As a direct result of five chaperones completing the newly required Florida 4-H Chaperone Certification in 2012 99 4-H youth were kept safe while enjoying the outdoors during our annual residential camp.

Volunteers in underserved areas in Leon County have served as a caring adult for over 65 youth who had limited access to 4-H programs, activities and events. These youth have also avoided those risky behaviors associated with juvenile delinquency and have remained actively involved with 4-H which research shows will help them become positive contributors in their respective community.

As a result of active 4-H participation and dedicated volunteers, over 95 minority youth developed positive relationships with their club or project leaders and avoided risky behaviors.

#### 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	Actual
2012	1721

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

###### Issue (Who cares and Why)

As a result of marketing efforts in 2012,

**What has been done**

- \* One new 4-H club has been established
- \* A total of twelve new business partnerships have been established which have resulted in \$4,458.59 in additional in-kind support
- \* The Calhoun County 4-H Learning Gardens have been established giving youth two acres to learn in as opposed to the small container garden they were limited to previously
  
- \* As a result of increased recruiting efforts targeted at minority groups one new club leader from a minority community has been screened and co-leads a project club

**Results**

Impact - The increased marketing efforts of Calhoun County 4-H has not only resulted in an increase of financial resources, but has built a network of support among local business, community leaders, and families. This network of support has been the key to establishing a more visible face of the 4-H program helping to accrue financial and volunteer resources from a wider audience base, and expand the scope of 4-H to larger and more varied audiences. Additionally, it has proven to promote an image of pride and excellence in Calhoun County 4-H, which in itself instills confidence in the program among target audiences.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development

**Outcome #7**

**1. Outcome Measures**

Change in Knowledge Volunteer Development and Systems to Support Youth

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	7741

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

**Issue (Who cares and Why)**

Training for 4-H volunteers is important for both success and sustainability.

**What has been done**

In Hillsborough County 100% of 36 adult 4-H community club leaders attended educational workshops throughout the 4-H year that taught and reinforced the need to provide safe and secure environments, proper risk management assessments and techniques and how to apply the experiential learning model to the youth in Hillsborough County 4-H.

**Results**

Impact: Young people need safe, structured places to learn and links to basic services that, if absent, can prevent them from learning and functioning within our society. (National Research Council, 2002). The features of positive developmental settings and characteristics of successful positive youth development are: Physical and Psychological Safety - Safe and health-promoting facilities; practice that increases safe peer group interaction and decreases unsafe or confrontational peer interactions. Appropriate Structure - Limit setting, clear and consistent rules and expectations, firm enough control, continuity and predictability, clear boundaries, and age-appropriate monitoring. Supportive Relationships - Warmth, closeness, connectedness, good communication, caring, support, guidance, secure attachment, responsiveness. Opportunities to Belong - Opportunities for meaningful inclusion, regardless of one's gender, ethnicity, sexual orientation or disabilities; social inclusion, social engagement and integration; opportunities for socio-cultural identity formation; support for cultural and bicultural competence. (Leffert, Ph.D. et al., 1996).

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development

**Outcome #8**

**1. Outcome Measures**

Change in Behavior Volunteer Development and Systems to Support Youth

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

### 3b. Quantitative Outcome

Year	Actual
2012	4779

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

The Florida-Friendly 4-H program was started in 2012. The goal of the program was to teach youth entomology and horticulture.

#### What has been done

Entomology activities were conducted by Florida Yards and Neighborhoods agent, Jim Davis. Activities include insect identification, classification, collecting techniques, internal and external morphology, curation, pinning and dissection. Horticulture activities were conducted by Florida-Friendly Landscaping agent, Lloyd Singleton. Activities include plant identification, greenhouse maintenance and water conservation.

#### Results

This first-year program was a success. 100% of the youth attending the Florida-Friendly 4-H correctly labeled the external anatomy of insects as measured by a written exam. 100% of the youth attending the Florida-Friendly 4-H correctly pinned and curated insects from their collections. 100% of the students also learned different collecting techniques to collect insect specimens for their collection. Students attending the Florida-Friendly 4-H club expressed what they learned throughout the year.

?Florida-Friendly 4-H was based on Horticulture and Entomology. Catching bugs with Mr. Jim was so much fun. It was my favorite part of the whole year. He also taught us how to pin bugs. I enjoyed that too! Mr. Jim taught me so much about Entomology. Mr. Jim and Mr. Lloyd have taught me so many things. Mr. Jim showed us insects to stay away from and good insects. ? ?Ants were ant and moths were moths, well to me they were. At least until Mr. Jim told us about all the different kinds.??

?Friendly 4-H has taught me many things. My knowledge about Entomology has increased, but I still wish for more.??

Students involvement in both Entomology and Horticulture in the Florida-Friendly 4-H will gain useful skills, preparing them for advanced education. Skills such as learning the scientific method, reporting, observing, documenting, researching and reading were all skills that were reinforced and taught using a format that was fun, interactive and captivating for the youth.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development



## **Outcome #9**

### **1. Outcome Measures**

Change in Condition Volunteer Development and Systems to Support Youth

Not Reporting on this Outcome Measure

### **V(H). Planned Program (External Factors)**

#### **External factors which affected outcomes**

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

#### **Brief Explanation**

Florida is still being heavily impacted by the economic situation. Higher Education in Florida has lost more than 50% of state funding and has been impacted by other losses caused indirectly by the economic down turn. Issues related to Medicaid are also expected to impact us heavily. Changes in state, county and federal appropriations can also affect the outcomes related to youth. Because of limited resources in Florida and continuing devolution youth programs can always be affected by changing public and governmental priorities. These can include appropriations. Natural and national disasters can also affect the number of volunteers available to work with youth.

Florida is a state located in the tropics. Natural disasters such as tropical storms and hurricanes are common annual occurrences in this state. Severe weather conditions such as droughts frequently led to large-scale fires. We also have other weather extremes such as floods leading to large scale damage especially along the coastal regions. All of these can have a direct and indirect impact on youth programs.

### **V(I). Planned Program (Evaluation Studies)**

#### **Evaluation Results**

Florida 4-H is an important part of the Extension mission and programs are offered statewide that improve life skills for youth that lead to well-prepared adults and citizens. Florida develops programs through strong organizational strategies and learning environments that meet the needs of youth. Extension trains thousands of volunteer leaders who assist in making 4-H an experience with life long effects.

In 2012 4-H was one of the largest youth development programs in Florida with more than 222,00 youth involved ages 5-18 and over 15,000 youth and adult volunteers.

4-H is focusing on Science, Technology, Engineering and Math (STEM), healthy life styles and citizenship and leadership to prepare youth in Florida for future jobs and improved quality of life. The top 5 programs youth enrolled in during 2012 was communication and expressive arts, Ag in the classroom, environmental sciences, animals and biological sciences.

More than 136,684 youth and volunteers were surveyed who said they increased their knowledge in areas related to the development of responsible and productive youth. 116,908 were youth who said they increase knowledge related to life skills including areas related to STEM. 53,712 of these youth made positive changes in their lives. 27,301 made changes that had much broader impact on their communities and schools. Volunteers and other adults involved in 4-H were also surveyed. 12,035 increased their knowledge in organizational strategies and learning environments related to youth programs. 11,009 made changes that improved strategies and learning environments and 1,721 of those surveyed made changes that impacted their clubs, summer camps and other activities as well as their communities. 7,741 Volunteers who were surveyed said they gained knowledge through volunteer development programs and other systems that support youth. 4,770 made behavioral changes based on their training and 3,019 made changes that had broad impacts on their clubs and activities within their communities.

Florida 4-H is also working hard to improve the diversity of youth in 4-H programs. In 2012 41,466 of youth reached were hispanic, 1,313 were American Indian, 3,765 were of Asian descent, 40,374 were African American, 368 were Pacific Islander, 162,389 were white and 9,749 listed themselves as other. Florida youth attended 4-H in both urban and rural areas. In cities of over 50,000 over 49,900 youth were involved in 4-H programs. In city suburbs more than 37,300 youth were active. In towns under populations of 50,000 more than 72,500 youth were engaged. In towns of under 10,000 over 44,500 youth attended 4-H activities and clubs. In rural farm areas 13,684 youth were involved.

additional information on 4-H youth statistics can be found at [http://florida4h.org/about1/impact/Statistical\\_Snapshot\\_2011-2012.pdf](http://florida4h.org/about1/impact/Statistical_Snapshot_2011-2012.pdf)

## Key Items of Evaluation

Since 2008, 4-H Operation: Military Kids has held 19 camps for military youth in Florida. reaching 2,350 military youth. Camps special for children of deployed and active armed forces have opportunity to connect with other "like" military kids, be in a safe, supportive environment that includes youth mental health counselors as well. Camps have a mobile tech lab and parents can send messages and visit the camps private website with daily pictures of activities. The camps are so popular, in 2012 Camp Ocala was full 130 youth in less than 24 hours! All other camps were SOLD OUT within a week! the blend of 4-H camp facilities, OMK programs, and the support of American Legion (state-wide) and the Florida National Guard has made this opportunity happen for our youth. Not only have youth been affected by our camps, Florida 4-H Foundation, Camp Department has received significant funds over the 5 years to profit from this partnership. We do not have enough weeks to offer more camps - but we know we could fill at least one more camp in Ocala. The outcome of this success is the successful partnerships, change in increasing support from community and military and connecting youth to others for support and friendship.

**V(A). Planned Program (Summary)**

**Program # 5**

**1. Name of the Planned Program**

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

Reporting on this Program

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
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%	
	<b>Total</b>	100%	0%	0%	

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	40.0	0.0	0.0	0.0
Actual Paid Professional	77.2	0.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
846121	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
846121	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**

**Brief description of activities**

- Conduct workshops and meetings
- Deliver services
- Develop products, curriculum, resources
- Provide training
- Provide counseling
- Make assessments
- Work with the media
- Develop partnerships

**2. Brief description of the target audience**

**Brief description of the target audiences**

- Producers
- Commodity associations
- Owners/Operators
- Managers/Supervisors
- Workers/laborers
- Allied industry representatives
- Small farmers
- Government/Regulatory

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- County government
- State government
- Federal Government
- Tribal Government
- International governing bodies
- Harvesting/Packing/processing/distribution/transporting
- Retailers
- Importers/Exporters
- Youth and 4-H
- Youth educators
- Extension faculty
- general public

**3. How was eXtension used?**

eXtension use was not reported for this program

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	811352	1861943	0	0

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

**Patent Applications Submitted**

Year: 2012  
 Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
<b>Actual</b>	45	0	45

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Change in Knowledge Commercial Horticulture/Urban Forestry Services
2	Change in Behavior Commercial Horticulture/Urban Forestry Services
3	Change in Condition Commercial Horticulture/Urban Forestry Services
4	Change in Knowledge Residential Landscapes including Florida Yards and Neighborhoods (FFL/FYN)
5	Change in Behavior Residential Landscapes including Florida Yards and Neighborhoods (FFL/FYN)
6	Change in Condition Residential Landscapes including Florida Yards and Neighborhoods (FFL/FYN)

**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**

<b>Year</b>	<b>Actual</b>
2012	7372

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

**Issue (Who cares and Why)**

In Duval County, Our Downtown Ambassadors are paid and trained staff who serve as an extra set of eyes and ears to make Downtown more pleasant, comfortable and friendly. They are ready to give directions, answer questions, provide assistance, or walk you to your destination. Easily recognized by their orange polo shirts and pith helmets, the Downtown Ambassadors patrol the Downtown Improvement District seven days a week. Thanks to the Duval County Extension Office, the Downtown Ambassadors can now add tree pruning to their list of services.

**What has been done**

As the eyes and ears of Downtown Jacksonville, the Downtown Ambassadors were noticing places where trees and shrubs were encroaching on sidewalks, impairing pedestrians, and getting in the way of vehicles. The solution to these problems involved creating a CARE issue and sending it to the Public Works Department. In some cases it may take a month to get resolved. They came up with their own solution. Why not provide them with some pruning equipment and let them handle minor pruning issues right there on the spot. Their first attempt was met with several complaints because the pruning cuts were made incorrectly. However, with some training it could work.

The Duval County Urban Forestry Extension Agent was brought in to provide some hands on training to the Downtown Ambassadors.

**Results**

With some experience in the field along with supervised practice, the crew was able to learn the proper place to make a pruning cut, the proper pruning technique, and the basics of tree biology as well. The six Downtown Ambassadors who attended the training were all able to demonstrate



the location of the branch collar, where to make the proper pruning cut, using a pruning saw and doing it themselves. All of the attendees stated that they learned something new and that they had been pruning incorrectly in the past.

The partnership between the city of Jacksonville and the Extension Service allowed a rapid and efficient training of the Downtown Ambassadors who now can quickly resolve tree/pedestrian conflicts -- or prevent them from happening!

#### 4. Associated Knowledge Areas

<b>KA Code</b>	<b>Knowledge Area</b>
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 #2

##### 1. Outcome Measures

Change in Behavior Commercial Horticulture/Urban Forestry Services

Not Reporting on this Outcome Measure

#### Outcome #3

##### 1. Outcome Measures

Change in Condition Commercial Horticulture/Urban Forestry Services

Not Reporting on this Outcome Measure

**Outcome #4**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	66903

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

**Issue (Who cares and Why)**

The Florida-Friendly Landscaping? Program (FFL) includes programs for the homeowner, builder and developer, and landscape maintenance industry.

**What has been done**

In 2011, the Florida-Friendly Landscaping Program, along with the Florida Master Gardener program, were administratively structured into CLCE to provide better interdisciplinary research efforts and extension outreach opportunities.

The Florida-Friendly Landscaping Program has nine principles:

1. Right Plant, Right Place
2. Water Efficiently
3. Fertilize Appropriately
4. Mulch
5. Attract Wildlife
6. Manage Yard Pests Responsibly
7. Recycle Yard Waste
8. Reduce Stormwater Runoff
9. Protect the Waterfront

Since 2006, the Florida-Friendly Landscaping Program has been working within a majority of Florida's

counties. Currently, FFL programming is offered in 48 of 67 counties. But the 2010 Florida extension reports

of accomplishment show that more than 80 extension agents participated in some aspect of FFL outreach. Actual outreach is likely higher than these numbers below indicate.

**Results**

Between 2006 and 2012, more than 500,000 people have received in-person educational contact. The FFL agents have completed and documented over 700 site visits, presented 191 workshops on FFL principles, and reached more than 20,000,000 people with mass media outreach. In addition, FFL agents work closely with trained Master Gardeners to develop and implement outreach programs. Extension agents and Master Gardeners provide the majority of FFL programming.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
608	Community Resource Planning and Development

**Outcome #5**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	44956

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

**Issue (Who cares and Why)**

The Green Industries-Best Management Practices (GI-BMP) training program was developed by the Florida Department of Environmental Protection and endorsed by the pest control industry.

**What has been done**

The training is a product of the UF/IFAS Florida-Friendly Landscaping program with partial funding by FDEP through a Nonpoint Source Management (Section 319h) grant from USEPA. To date, the GI-BMP program has trained 22,548 unique individuals and certified 19,189 unique individuals.

**Results**

In 2012, 182 GI-BMP in-person classes were given with an average class size of 21. More than 3,800 people attended in-person classes and 3,122 were certified from this method. Combination in-person and online

classes resulted in 4,291 attending and 3,505 certified. Finally, online-only classes resulted in 365 certified.

The GI-BMP program developed a follow-up survey that is administered annually to track reported behavior

change. The GI-BMP program has been approved as CEU providers for FDACS pesticide licenses, the

Community Association Management Association, and FNGLA.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
211	Insects, Mites, and Other Arthropods Affecting Plants
216	Integrated Pest Management Systems

**Outcome #6**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	5563

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

**Issue (Who cares and Why)**

Sometimes simple changes can save a lot of dollars.

**What has been done**

A 1,000-acre beachside gated community in Flagler County, saved thousands of dollars through a common-sense, hands-on approach in a major landscape retrofit during the last four years, and credits the University of Florida/IFAS Master Gardener program as a major catalyst for its improvements.

**Results**

The community is saving \$50,000 a year on annuals and they reduced the cost of the retrofit by \$135,000.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
112	Watershed Protection and Management
405	Drainage and Irrigation Systems and Facilities
608	Community Resource Planning and Development

#### V(H). Planned Program (External Factors)

##### External factors which affected outcomes

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

##### Brief Explanation

Florida is still being heavily impacted by the economic situation. Public higher education in Florida has lost more than 50% of state funding and has been impacted by other losses caused indirectly by the economic down turn. Issues related to Medicaid are also expected to impact us heavily. Changes in state, county and federal appropriations can also affect the outcomes related to the Florida land-grant mission. Because of limited resources in Florida and continuing devolution Extension programs can always be affected by changing public and governmental priorities. These can include appropriations.

Changing laws, policies, and state county and federal regulation also impact landscape educational programming. These may include laws or regulations governing water and fertilizer, plant selection and other requirements that can impact Florida landscapes and resources.

Natural and national disasters can also affect the number of volunteers available to work with youth. Florida is a state located in the tropics. Natural disasters such as tropical storms and hurricanes are common annual occurrences in this state. Severe weather conditions such as droughts frequently led to large-scale fires. We also have other weather extremes such as floods leading to large scale damage especially along the coastal regions. All of these can have a direct and indirect impact on Extension programs.

#### V(I). Planned Program (Evaluation Studies)

##### Evaluation Results

The agricultural industry in Florida accounts for approximately 1.6 million jobs and \$76.5 billion in value-added impacts to the economy. The horticulture industry accounts for more than 178,000 jobs and \$14.1 billion in economic impacts to the state's economy.

The UF/IFAS Center for Landscape Conservation and Ecology (CLCE) was established in 2006 by an act of the Florida legislature in response to the green industry's concern for the long-term sustainability of current landscape management practices. With Florida's

growing population, water quantity and quality issues were becoming more important. It was recognized that a large focus needed to be placed on landscapes, urban water and fertilizer use, plant choice, and maintenance practices. With that in mind, CLCE was developed with a strong interdisciplinary research and extension focus.

#### **Concerns for Florida's Future**

Many areas of the state suffer regular water shortages.

Poor water quality is an issue throughout the state and the problem is growing exponentially.

Exotic pests (insects, diseases, plants, and animals) are significant threats to natural areas, homes gardens, landscapes, and agricultural production.

Tourism is the state's largest industry, and healthy and beautiful landscapes are a key part of visitors' attraction to and enjoyment of Florida.

We can address these concerns with programs that educate Floridians about sustainable landscape management practices. With research and outreach, we can reduce water use, improve water quality, limit runoff, combat invasive species, and make other inroads to a more sustainable Florida while maintaining aesthetically pleasing landscapes. Florida's green industry--which encompasses lawn-, landscape-, and grounds-related businesses--impacts all Floridians and generates \$15 billion a year. Florida-Friendly landscape practices help ensure that all of us can continue to enjoy Florida's natural beauty and wealth. In 2012 CLCE began working with another IFAS Center called the PIE center. This center provides feedback on issues of concern to state citizens allowing CLCE to pinpoint issues that need solutions and change.

In an effort to create and maintain resource effective landscapes in smart ways UF/IFAS Extension provides strong programs related to water use, sustainable and economic benefits related to landscape, and effective pest management. Extension also trains volunteers in the Florida Friendly landscaping program and the master gardener program. 251,824 citizens and volunteers were surveyed in 2012 with 125,317 saying they increase their knowledge in creating and maintaining efficient landscapes. 91,216 made positive behavioral changes in their landscape practices and 14,143 said they had a broader impact on their communities. Changes related to improved landscape practices can mean huge savings on quantity and quality of water and provides a more effective pest management program in a state that is always fighting pest impact on Florida crops and the environment.

## **Key Items of Evaluation**

Issues like water quality, land use change, nutrient management, etc. are increasingly important to landscape professionals, policy makers, land managers, and also to the general public. The Center for Landscape Conservation and Ecology (CLCE Center) and the Center for Public Issues Education (PIE) undertake integrated research projects that focus on the horticultural and applied social science needed to address these issues and also to communicate more effectively to and with the public. This is a new integrated research and Extension program funded in 2012.

Members of the agricultural industry need proven and trusted recommendations they can use to manage their businesses successfully and increase their productivity. Homeowners also need input on how they can effectively manage their landscapes while adhering to conservation practices. The CLCE Center utilizes a unique team of interdisciplinary faculty to develop landscape management practices and provide science-

based interdisciplinary recommendations about plant choice, plant maintenance, and water and fertilizer use for homeowners, landscape managers, horticultural industry professionals, governmental and community organizations, and other key stakeholders.

The PIE Center provides the link between industry professionals, local communities and the public so they can work together to develop management practices to protect the environment and preserve jobs. The PIE Center is the "go-to" information resource for Floridians designed to equip the public and policy makers with the objective, research-based information they need to make decisions that strengthen local economies, preserve and create jobs and protect the environment.

This project includes six new tenure track faculty lines and start-up funds for the development of an innovative research partnership between environmental horticulture researchers and social scientists focused on developing environmentally friendly production practices and communicating them more effectively to Florida's agriculture and horticulture industries and the public. The partners will utilize practical, applied research for issues such as water conservation, environmental impacts, sustainable landscape management, pesticide and fertilizer use as well as how to effectively communicate the results. The goal is 10 new proposals submitted (or \$2 million in new external funding), 10 new doctoral degrees, and 15 master's degrees by June 2015 as well as 8 new extension programs focused on industry sustainability. These new faculty will also secure external funding for integrated research/extension projects.

The partnership between the CLCE Center and the PIE Center offers an interdisciplinary approach to key issues related to Florida's economy and environment. Through its research, education, and outreach, the CLCE Center seeks to promote research-based best management practices among landscape professionals and other members of the agricultural industry and to educate homeowners on sustainable landscape practices through its research, education and outreach. CLCE also seeks to train students who will enter careers that allow them to engage in and promote sustainable landscape practices. Potential outcomes and benefits of the center's efforts are wide reaching.

### **Outcomes**

Environmental benefits of CLCE's efforts include:

- reduce water usage
- reduce stormwater runoff
- reduce use of fertilizers and pesticides
- reduce occurrence of exotic invasive pests
- improve water quality

Community benefits of the CLCE's efforts include:

- increase knowledge and behavior change related to sustainable landscape practices
- develop an environmental ethic among target audiences
- facilitate acceptance and use of functional and aesthetic landscapes
- assist with implementation of science-based policies

Economic benefits of the CLCE's efforts include:

- reduce the cost of landscape installations due to proper plant selection and care practices
- reduce the cost to maintain landscapes for homeowners and community managers

- contribute to the long-term economic viability of Florida's landscape industry

### **Impacts**

- create opportunities for responsible economic growth in the state's horticultural industry
- catalyze responsible use of pesticides and fertilizers in the landscape
- allow the widespread implementation of responsible environmental landscape practices
- preserve or improve the state's environmental conditions

The PIE Center works in concert with CLCE to provide trusted social science research, strategies and recommendations on how to more effectively communicate, educate and inform Floridians about important, agricultural and natural resources issues.

The PIE Center seeks to achieve the following impacts and outcomes on behalf of key beneficiaries:

### **Outcomes**

Stakeholders will know how to and develop skills to more effectively:

- identify education/information needs and gaps on agriculture and natural resource issues
- educate and communicate to their audiences more effectively
- increase consistency in information dissemination/educational programming on agriculture and natural resource issues
- examine and create dialog around agriculture and natural resource public issues from multiple perspectives

The public will:

- become more aware of agriculture and natural resource issues of importance to Floridians
- seek out education and communication from both PIE and CLCE when it seeks information about agriculture and natural resource issues and especially those focused on sustainable environmental practices in horticulture.

### **Impacts**

As a result of the PIE Center's efforts, stakeholders:

- resolve conflict and build relationships with constituents
  - identify issues and build appropriate communications and education efforts to engage citizens in research-based, informed decision making on agriculture and natural resource issues.



**V(A). Planned Program (Summary)**

**Program # 6**

**1. Name of the Planned Program**

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

Reporting on this Program

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
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	15%	15%	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	15%	5%	0%	
724	Healthy Lifestyle	5%	15%	0%	
801	Individual and Family Resource Management	10%	10%	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%	
	<b>Total</b>	100%	100%	0%	

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

<b>Extension</b>	<b>Research</b>
------------------	-----------------

<b>Year: 2012</b>	<b>1862</b>	<b>1890</b>	<b>1862</b>	<b>1890</b>
	40.0	3.0	0.0	0.0
Plan	40.0	3.0	0.0	0.0
Actual Paid Professional	75.6	1.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
828585	134114	0	0
<b>1862 Matching</b>	<b>1890 Matching</b>	<b>1862 Matching</b>	<b>1890 Matching</b>
828585	134114	0	0
<b>1862 All Other</b>	<b>1890 All Other</b>	<b>1862 All Other</b>	<b>1890 All Other</b>
0	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

**Brief description of activities**

- Conduct workshops and meetings
- Deliver services
- Develop products, curriculum, resources
- Provide training
- Provide counseling
- Make assessments
- Work with the media
- Develop partnerships

**2. Brief description of the target audience**

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

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

**3. How was eXtension used?**

eXtension use was not reported for this program

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	729422	1673925	0	0

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

**Patent Applications Submitted**

Year: 2012

Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
<b>Actual</b>	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**

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

## **Outcome #1**

### **1. Outcome Measures**

Change in Knowledge Personal and Family Well-Being

### **2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

### **3a. Outcome Type:**

Change in Knowledge Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	8566

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

#### **Issue (Who cares and Why)**

With support from a National Institute of Food and Agriculture Sustainable Community Project grant, the Grandparenting Resilience and Sustainability (GRandS) program was developed to work closely with community partners to provide education and skills training to grandparents who are raising their grandchildren.

#### **What has been done**

Currently, GrandS is being offered at four different locations in Palm Beach County with over 100 grandparents raising grandchildren having participated. Program sessions are offered bi-monthly (monthly at some sites) and include eight educational units organized around the three objectives: parenting and discipline, family strengths and communication, and community resources.

#### **Results**

Results from evaluations show that 71% of grandparents better understand positive discipline and how it builds self-esteem in children, 86% feel more comfortable giving their grandchild age-appropriate consequences, and 75% reported they are more aware of the community resources available to them.

### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
801	Individual and Family Resource Management

- 802 Human Development and Family Well-Being
- 803 Sociological and Technological Change Affecting Individuals, Families, and Communities

**Outcome #2**

**1. Outcome Measures**

Change in Behavior Personal and Family Well-Being

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	2738

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

**Issue (Who cares and Why)**

Home ownership is "the" American dream. In South Florida the real estate market is especially challenging for first-time home buyers. In addition, other barriers, such as lack of savings or down payment, credit blemishes, low credit scores, and lack of knowledge, may discourage potential buyers.

Miami-Dade County Extension works with Miami-Dade Affordable Housing, Inc., who sponsor's 8-hour first-time homebuyer workshops to educate, counsel, and guide consumers through the home buying process. One hundred twenty-four consumers took part in the 2012 program and of these 80 participants completed the program and graduated. Ten families closed on loans and purchased homes totaling \$954,900 in mortgages. The first-time homebuyer program has attracted many consumers who thought homeownership was out of reach, and provided a unique opportunity to increase ownership and wealth.

**What has been done**

Miami-Dade County Extension works with Miami-Dade Affordable Housing, Inc., who sponsor's 8-hour first-time homebuyer workshops to educate, counsel, and guide consumers through the home buying process. One hundred twenty-four consumers took part in the 2012 program and of these 80 participants completed the program and graduated.

**Results**

Ten families closed on loans and purchased homes totaling \$954,900 in mortgages. The first-time homebuyer program has attracted many consumers who thought homeownership was out of

reach, and provided a unique opportunity to increase ownership and wealth.

#### 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	Actual
2012	1104

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

###### **Issue (Who cares and Why)**

This agent began partnering with Sarasota County Government in 2011 as part of the Green Champion Series. Certification is voluntary and is achieved by employees who participate in all of the class series.

###### **What has been done**

This agent teaches one of the Green Champion classes entitled, "Healthy Eating for a Healthy Planet" in the series, two times per year. Between 2011 and 2012, the agent lectured to over 75 county employees about the importance of eating a healthy diet, saving money at the grocery store, and the impact of our food choices on our health, economy and environment. Employees are surveyed at the conclusion of each class and the results are provided to the instructors.

###### **Results**

All of the evaluations given to this agent showed knowledge gain in all categories. On a later date, one of the participants in the class saw the agent to let them know that they were able to save



more than \$100 a month by packing their lunch for work each day. This amount did not include a savings on gas to and from a take-out each day. The savings added up to approximately \$1,200 annually. The employee is planning a vacation using this savings from their budget.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
724	Healthy Lifestyle
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**

<b>Year</b>	<b>Actual</b>
2012	9022

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

**Issue (Who cares and Why)**

Florida state Extension specialists collaborated with Marion County Extension Faculty and Madison County Extension Faculty to develop a state-wide curriculum entitled Women and Money: Unique Issues.

**What has been done**

The curriculum comprises five modules (economic status of women, money basics, protecting assets, investing basics, and estate planning), incorporating literature review, lesson plans, multi-media instructional presentations, EDIS publications, fact sheets, activities, and worksheets. A focus group, consisting of seven Family and Consumer Sciences Extension faculty and two financial planning professionals, was conducted to receive feedback on works already developed and brain storm about yet-to-be developed-works. The curriculum is currently being pilot tested in select Madison county and Marion county and will be made available state wide at the 2013 FCS

**Results**

In Marion county, the piloted curriculum has resulted in 95% (n=88) of participants, aged 21-83, reporting knowledge gain and increased confidence in their finances.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
801	Individual and Family Resource Management

**Outcome #5**

**1. Outcome Measures**

Change in Behavior Personal Financial Education

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	3754

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

**Issue (Who cares and Why)**

Finding time to learn as a working adults isn't always easy.

**What has been done**

Lunchtime financial education web conferences were created by a group of 4 agents & specialist to reach non-traditional audiences.

**Results**

Results:

An online evaluation was sent to 136 webinar participants 1-6 months after their participation in a webinar. The webinars were evaluated mid-year (July) and year end (November) for the previous 1 to 4 months. 51 usable responses were received (37.5% response rate). People who

responded reported taking the following actions:

- \* 31.4% (16 of 51) created or revised financial goals.
- \* 11.8% (12 of 51) ordered and reviewed credit report.
- \* 15.7% (8 of 51) tracked spending for at least a month.
- \* 17.6% (9 of 51) used information learned to improve credit score.
- \* 31.4% (16 of 51) started or increased emergency savings
- \* 17.6% (9 of 51) reduced credit card debt
- \* 28.1% (9 of 32) planned ahead for vacation spending
- \* 21.6% (11 of 51) developed or revised spending plan/budget
- \* 54% (27 of 50) reported being more confident in ability to manage finances.

Additionally - extension agents also participated in the webinars and used the information to increase there subject matter knowledge and shared the information with their clientele.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

##### Outcome #6

###### 1. Outcome Measures

Change in Condition Personal Financial Education

Not Reporting on this Outcome Measure

##### Outcome #7

###### 1. Outcome Measures

Change in Knowledge Health and Nutrition

###### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

###### 3a. Outcome Type:

Change in Knowledge Outcome Measure

###### 3b. Quantitative Outcome

Year	Actual
2012	38846

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

**Issue (Who cares and Why)**

The focus is obesity prevention in children and adolescents by improving their nutrition and physical activity choices through educational programs that reflect the Dietary Guidelines for Americans and result in positive behavior change.

**What has been done**

This program provides nutrition education to families receiving, and those eligible to receive, Supplemental Nutrition Assistance Program (SNAP) benefits. As part of the FNP program, the Youth Understanding MyPlate (YUM) curriculum This program is being implemented in various counties throughout the state. In 2012, 11 FNP counties (Sarasota, Collier, Putnam, St. Johns, Levy, Orange, Walton, Brevard, Lafayette, Taylor, Santa Rosa) implemented part or all of the YUM curriculum. In addition, 14 FNP counties (Bay, Brevard, Broward, Columbia, Dixie/Gilchrist, Flagler, Madison, Levy, Osceola, Okaloosa, Orange, Pasco, Putnam, Santa Rosa) are currently implementing YUM. The evaluation tool for this curriculum was developed for the 1st and 2nd grade level lesson and consists of a pre/post test with knowledge questions.

**Results**

-In Santa Rosa County, six 1st grade classes participated in all six lessons of YUM. Of the 80 students who participated there was an average increase in knowledge from pre- to post-test of 33.3%.

In Santa Rosa County, two 2nd grade classes participated in all six lessons of YUM. Of the 26 students who participated there was an average increase in knowledge from pre- to post-test of 27.4%.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
701	Nutrient Composition of Food
703	Nutrition Education and Behavior
724	Healthy Lifestyle

**Outcome #8**

**1. Outcome Measures**

Change in Behavior Health and Nutrition

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	39738

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

**Issue (Who cares and Why)**

According to research, weight loss and a healthy lifestyle can lead to a significant reduction in hypertension and blood sugar levels which can reduce heart disease.

**What has been done**

In Clay County faculty betan a program called Rural LITE. Final Assessment information for Rural LITE will be collected in 2013 so actual end of program results cannot be reported. However, after six months of treatment, the following results were reported (average amounts for 39 participants):

**Results**

Weight Loss 16.9 pounds  
Systolic Blood Pressure 8 point decrease  
Diastolic Blood Pressure 5 point decrease  
Triglycerides 18 point decrease

**Impacts:**

The preliminary results translate to major health improvement overall in areas of heart disease and diabetes as well as overall health.

**Outcomes:**

As a result of Rural LITE Weight Management program, 100 % of 15 participants reported at least two weight management techniques they had learned and practiced in their lives.

**4. Associated Knowledge Areas**

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

**Outcome #9**

**1. Outcome Measures**

Change in Condition Health, and Nutrition

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	7508

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

**Issue (Who cares and Why)**

Research shows that obese children are much more likely to become obese adults than those who do not fall into that category. Obese adults are at higher risk for a myriad of chronic diseases including heart disease, diabetes, certain types of cancer, and kidney disease. By teaching these 900 children healthy eating habits such as eating lots of fruits and vegetables at a young age, they are less likely to suffer from these diseases and the related costs.

**What has been done**

Take Charge of Your Diabetes (TCYD) in Suwannee County  
During the Family Nutrition Program (FNP) contract year of 2011-12 in Suwannee County, Florida, program assistant Bonnie Box not only taught nutrition lessons to all pre-K, K, and first grade classes at Suwannee Primary School (SPS) but she was also instrumental in implementing school gardening projects there.

**Results**

The result was an overall increase in the percentages of the fruits and vegetables eaten in the school lunchroom.

Ms. Box worked with a small core of SPS teachers to write an "Ag in the Classroom" grant to fund supplies for the gardens and found other donations of time and materials to sustain them. Raised bed and hydroponic gardens were used to raise several varieties of lettuce, snow peas, herbs, and potatoes. Most of the 52 classes totaling almost 900 students, led by Ms. Box, prepared the soil, planted, harvested and ate the crops. The classroom teachers taught garden-related lessons such as plant parts, photosynthesis, growth, etc. while Ms. Box connected human nutrition to plant nutrition. At lettuce-harvest time, visual evaluation by the teachers and other

adults revealed that 86% of students ate their lettuce with just a bit of fat-free ranch-style dressing to dip it in.

More impressive is the incident when a local farmer participating in the "Farm-To-School" program at the high school delivered "extra" lettuce to SPS. Having previously been involved in conversations with Ms. Box about the garden, Smilina Thomas, the cafeteria director called Ms. Box to ask her opinion of how it might be served at lunch. Ms. Box suggested that the "lunch ladies" give each student a couple of leaves and a small amount of dressing to dip them in. Before the first classes went to lunch an enthusiastic announcement was made to all classes that they would be serving lettuce "Ms. Bonnie-Style"! That day almost all of the lettuce was consumed by the students. Everyone involved with the school agreed that it was a definite sign of gardening-nutrition success!

The following are some of the comments made about this course:

From the Wellness Grant coordinator of Suwannee County School Board :

"Looks like TCYD is getting a lot of mileage here among School Board employees! You are such a great teacher/leader. You are a great asset to our community! THANKS FOR ALL YOU DO!

From TCYD participants -

"This course helped me think before I eat and to realize the problems that can arise."

"Really enjoyed the class and learned a lot. It helped me to understand diabetes better. I would recommend it to anyone who has diabetes."

"I have very much enjoyed this class and will use the info to continue to improve my health."

"When I started the class my A1C was 10.5. Now it is 9 and will keep going down."

"Excellent leader, very informative, learned so much that will hopefully stay with me. Have been very encouraged and motivated by listening to (the Agent) and learning new things."

Even a 5% loss in body weight is statistically significant in producing health benefits. If only 10% of participants make small changes towards a healthier lifestyle, over the long term, potentially thousands of dollars are saved in healthcare costs, medications, lost work/productivity, and improvement in overall quality of life for citizens.

FNP Gardening Success in Suwannee County

"Students who participate in school garden projects discover fresh food, make healthier food choices, and are physically active. Anecdotal evidence is strong - teachers relate that students eat what they grow. Research corroborates this - children who plant and harvest their own fruits and vegetables are more likely to eat them."

#### 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
806	Youth Development

**Outcome #10**

**1. Outcome Measures**

Change in Knowledge Sustainable Housing and Home Environment

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	2705

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

**Issue (Who cares and Why)**

In 2010, Pasco County's population reached 465,543, making it the 6th fastest growing county in FL and 50th in the nation! The construction of so many new homes (as much as five percent/year - prior to economic downturn in 2007) places even greater demands on our natural resources. With increasing fuel/transportation costs, etc. going GREEN is finally taking on! Pasco County's total area is made up of 868 miles (745 square miles of land and 123 miles of water(14.18%). Sustainability? = Environmental education has been a priority of Pasco FCS for 25 years. Over the years recycling, energy, and water conservation efforts have developed a strong partnership with Pasco County Utilities (grant-funded since 1989), District School Board of Pasco County, and a large, dedicated group of FCS/HCE volunteers.

**What has been done**

Water Conservation Education: FCS agent partners with FY&N homeowner program assistant 4-6 times per year to team-teach combined indoor/outdoor water conservation workshops (FCS agent covers indoor water conservation and sometimes adds a segment on recycling). Objective: Annually, 200 residents will attend a workshop and make/take one rainbarrel per family home to put to use.

**Results**

Impact: Over the past 3.5 years (2009-2012), a total of 17 workshops with 748 residents attending and a total of 423 rainbarrels.

**4. Associated Knowledge Areas**

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



Commercial Structures

**Outcome #11**

**1. Outcome Measures**

Change in Behavior Sustainable Housing and Home Environment

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	1283

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

**Issue (Who cares and Why)**

Make sure homes are safe and healthy is an important concept made more important by the high number of senior citizens now living in the state.

**What has been done**

In Orange County, 510 individuals learned action steps to create a healthier home or day care home through methods of workshops, demonstrations, and game activities:

**Results**

\* 36 seniors, who attended three trainings, reported 100% increase in knowledge hidden dangers in the home, how to improve air quality, ways to reduce allergens, and how to identify bedbugs. Each wrote one or more personal action steps to implement within a month of training to reduce pollutants and contaminants in their homes.

\* 4 participants of State Child Care Conference workshop reported a 48% percent increase in knowledge about how to maintain a healthier day care based on pre-post evaluation survey.

\* 4 individuals attended a 12 hour train-the-trainer workshop.

\* 30 participants attending a Health Starts at Home workshop at the Orange County Library reported a 26.8% knowledge gain about assessing the home environment for health risks based on pre-post test results. The average proficiency score at the end of the workshop was 84.3% versus 57.5% at the beginning of the workshop.

\* 107 individuals reached by volunteer outreach.

\* Over 3000 employees and conference attendees viewed Health Starts at Home/Wellness educational exhibits; agents individually consulted with 329

#### **4. Associated Knowledge Areas**

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

##### **Outcome #12**

###### **1. Outcome Measures**

Change in Condition Sustainable Housing and Home Environment

Not Reporting on this Outcome Measure

##### **Outcome #13**

###### **1. Outcome Measures**

Change in Knowledge Sustainable Organizations and Communities

Not Reporting on this Outcome Measure

##### **Outcome #14**

###### **1. Outcome Measures**

Change in Behavior Sustainable Organizations and Communities

Not Reporting on this Outcome Measure

##### **Outcome #15**

###### **1. Outcome Measures**

Change in Condition Sustainable Organizations and Communities

Not Reporting on this Outcome Measure

##### **Outcome #16**

###### **1. Outcome Measures**

Change in knowledge related to food safety

###### **2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	0

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

**Issue (Who cares and Why)**

Foodborne illnesses continue to be a major health concerns (CDC data), especially for persons with compromised immunity, such as infants, young children, older adults, and persons with certain medical conditions. The majority of foodborne illnesses in the US are due to microbial causes, and in Florida, about 50% of foodborne illness outbreaks are attributed to restaurants and other commercial food service establishments. Food safety education, such as teaching proper food handling practices to those who handle food in restaurants and other food service establishments, can reduce the burden of foodborne illness.

**What has been done**

The majority of ServSafe® program participants in Florida are managers of restaurants and hotels. Other participants include employees of school cafeterias, hospitals, churches, daycare centers, nursing homes, caterers, nonprofit programs, volunteer associations, golf courses, gas stations, food production and distribution companies, community centers, camps, county health departments, general stores, and food cart vendors.

The objectives of the ServSafe® training program for food managers/food handlers in Florida are for program participants to gain the knowledge, tools, and credentials they need to offer reasonably safe foods to the public or consumers.

- 1) Participants will increase their knowledge of foodborne illness and associated risk factors, as well as ways to minimize those risks.
- 2) Participants will increase their understanding of the nature of food contaminants and ways to control them.
- 3) Participants will increase their knowledge of safe practices that prevent foodborne illness throughout the entire operation, from the acquisition and storage of raw foods, through the preparation, cooking, cooling, and storing of cooked foods, to reheating, hot and cold holding, and serving of foods.
- 4) Participants will increase their awareness of the contribution of food handlers? personal hygiene to the control of foodborne illness.
- 5) Participants will commit to making changes in their food handling practices, consistent with the information they learn in the program.
- 6) Participants will pass the ServSafe® Examination (minimum score of 75%).

**Results**

Each year, University of Florida IFAS Extension faculty in about 20 counties teach food safety education classes to food handlers using the ServSafe® program. In 2012, 18 counties had active programs, while others are in the process of providing the training. In 2012, an estimated 456 people participated in the program in 18 counties. Among participants, the program increased knowledge and resulted in plans to change specific food handling practices in order to improve food safety in food establishments. Based on post-test evaluation surveys collected at the state level from 10% of total participants, more than 95% of the participants evaluated increased their knowledge of food safety. Eighty-six percent of program participants passed the certification exam and became certified food protection managers. One county documented an increase in wages of a small number of participants after they received the certification. Since the training, 100% of participants reported that they have conducted a food safety training for their employees; 50% purchased food safety posters, created a temperature log, and began recording food temperatures.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
723	Hazards to Human Health and Safety

#### Outcome #17

##### 1. Outcome Measures

Change in behavior related to food safety

##### 2. Associated Institution Types

- 1862 Extension

##### 3a. Outcome Type:

Change in Action Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2012	0

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

###### **Issue (Who cares and Why)**

Home food preservation remains an important and popular activity throughout the US. According to a national survey conducted by the UGA National Center for Home Food Processing and Preservation in 2000, a high percentage of home food processors are using practices that put them at high risk of foodborne illness and economic loss due to food spoilage. Because of the recent economic downturn, and because of the recent approval of the Florida Cottage Food Rules, home food preservation is returning as a popular activity across Florida. According to a current survey, many consumers continue to use improper home canning techniques, leading to food spoilage and potentially unsafe products.

### **What has been done**

Knowledge of correct recommendations and reputable sources of information and of how to contact the right people is the first step toward improving food preservation practices. Many people are unaware of the small things they are doing that can lead to an increased risk of foodborne illness, so increasing knowledge of risk factors can go a long way toward helping correct some of these practices and keeping food safe. To increase knowledge about all aspects of proper food handling practices in order to reduce foodborne illness, we include a combination of classroom lectures, discussions, and hands-on experiences. Instructors also may use role plays as well as practical experience in some of the lessons.

- 1) Participants will be able to identify reputable information sources and the latest recommended materials and information for their use;
- 2) Participants will increase their knowledge of food preservation and home canning in order to reduce the risk of foodborne illness and economic losses;
- 3) Participants will gain hands-on experience in both water-bath and pressure canning, as well as learn how to preserve foods properly by other methods, such as by freezing and dehydrating, using safe, timely and accurate food processing and preservation information, and;
- 4) Participants will adopt at least one safe or recommended food preservation technique, leading to safer products, as well as to saving money and the prevention of food losses.

### **Results**

In 2012, a total of 190 food preservation and home canning classes were taught by the UF/IFAS Family and Consumer Sciences County Faculty in 29 Florida counties, reaching 2,880 participants. A comprehensive evaluation of 35% of the participants revealed that ninety percent of them (evaluated participants) had identified at least one practice to change after taking the classes.

The evaluation revealed significant gains in the knowledge of participants (60% of those evaluated) after taking the classes. Since improper canning techniques can result in botulism, a food intoxication condition with an 80% mortality rate, changing to safe canning techniques can save lives. In addition, after learning about the legal requirements, some participants realized that they are not ready to start a business of selling home-canned food, while others are ready to proceed with their plans because of what they learned from the classes.

## **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
703	Nutrition Education and Behavior
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

### **Brief Explanation**

Florida is still being heavily impacted by the economic situation. Public higher education in Florida has lost more than 50% of state funding and has been impacted by other losses caused indirectly by the economic down turn affecting the Extension structure. Issues related to Medicaid are also expected to impact us heavily. Changes in state, county and federal appropriations can also affect the outcomes related to the Florida land-grant mission. Because of limited resources in Florida and continuing devolution Extension programs can always be affected by changing public and governmental priorities. These can include appropriations.

Natural and national disasters can also affect the number of volunteers available to work with youth and family issues. Florida is a state located in the tropics. Natural disasters such as tropical storms and hurricanes are common annual occurrences in this state. Severe weather conditions such as droughts frequently led to large-scale fires. We also have other weather extremes such as floods leading to large scale damage especially along the coastal regions. All of these can have a direct and indirect impact on Extension programs related to individuals, family and community well-being and economic security.

## **V(I). Planned Program (Evaluation Studies)**

### **Evaluation Results**

Promoting individual, family and community well-being and economic security is foremost in the minds of Florida residents as shown in a recent long ranging planning process conducted by Extension across Florida. Food, health impacted by food and nutrition and food safety are all important areas adding to better quality of life. And although childhood obesity is important Floridians see this as part of a broader need to improve nutrition for all people as well as food safety. Foreclosures of homes have been high in Florida and continue to impact the well-being of many Florida residents and so sustainable housing and personal financial education have been highlighted as needs especially since personal finance is no longer taught in most public schools along with nutrition courses. Through educational programs Florida Extension is striving to improve the health and well-being of Florida citizens, their families and communities.

Florida Extension (UF/IFAS and FAMU/CAFS) surveyed more than 167,200 individuals following Extension activities and educational programs. Of these 59,139 reported they had increased knowledge in the areas of personal finance, health, nutrition, food safety and sustainable housing and home environment. 47,513 made positive changes in their lives which promoted improved well-being and 11,676 made changes that more broadly

impacted their families and communities through the changes they made.

### **Key Items of Evaluation**

Each year, University of Florida IFAS Extension faculty in about 20 counties teach food safety education classes to food handlers using the ServSafe® program. In 2012, 18 counties had active programs, while others are in the process of providing the training. In 2012, an estimated 456 people participated in the program in 18 counties. Among participants, the program increased knowledge and resulted in plans to change specific food handling practices in order to improve food safety in food establishments. Based on post-test evaluation surveys collected at the state level from 10% of total participants, more than 95% of the participants evaluated increased their knowledge of food safety. Eighty-six percent of program participants passed the certification exam and became certified food protection managers. One county documented an increase in wages of a small number of participants after they received the certification. Since the training, 100% of participants reported that they have conducted a food safety training for their employees; 50% purchased food safety posters, created a temperature log, and began recording food temperatures.

If the public value for the ServSafe® certification is equivalent to reducing foodborne illness and related health care cost (<http://blogs.ext.vt.edu/impact-communication/files/2012/06/Franz-Public-Value-JOE-article.pdf>), using the latest economic burden cost calculator from the USDA-ARS (<http://webarchives.cdlib.org/sw1tx36512/http://www.ers.usda.gov/Publications/EIB28/>) and the projected cost from the National Restaurant Association (cost of \$75,000 per outbreak to the establishment) when an outbreak occurred, we have created an estimation of the economic value of food service educational programs by multiplying the number of establishments reached by food handling programs. By a conservative estimate, based the cited statistics, the economic value of the ServSafe®Manager Certification Training, estimated from only 10% of the total participants in Florida, is estimated to be \$3.4 million (45 x \$75,000) in 2012.

**V(A). Planned Program (Summary)**

**Program # 7**

**1. Name of the Planned Program**

Maintain, Enhance and Establish Sustainable Communities

Reporting on this Program

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
608	Community Resource Planning and Development	10%	10%	0%	
610	Domestic Policy Analysis	10%	10%	0%	
723	Hazards to Human Health and Safety	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%	
	<b>Total</b>	100%	100%	0%	

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	5.0	2.0	0.0	0.0
Actual Paid Professional	11.0	2.2	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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



Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
120561	201170	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
120561	201170	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**

**Brief description of activities**

- Conduct workshops and meetings
- Deliver services
- Develop products, curriculum, resources
- Provide training
- Provide counseling
- Make assessments
- Work with the media
- Develop partnerships

**2. Brief description of the target audience**

**Brief description of activities**

- Planners/Zoning officials
- General public
- Citizen committees
- Citizens within a community
- 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
- Youth
- Post-secondary Students

**3. How was eXtension used?**

eXtension use was not reported for this program

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	139640	320456	0	0

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

**Patent Applications Submitted**

Year: 2012

Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
<b>Actual</b>	10	0	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	Change in Knowledge Growth Management and Land Use Policy
2	Change in Behavior Growth Management and Land Use Policy
3	Change in Condition Growth Management and Land Use Policy
4	Change in Knowledge Civic Engagement, Leadership, and Community Development
5	Change in Behavior Civic Engagement, Leadership, and Community Development
6	Change in Condition Civic Engagement, Leadership, and Community Development
7	Change in Knowledge Economic Development
8	Change in Behavior Economic Development
9	Change in Condition Economic Development

**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**

<b>Year</b>	<b>Actual</b>
2012	530

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

**Issue (Who cares and Why)**

Tree Convocation: Facilitating Success in Sarasota County  
Sarasota County has long been established as a leader in both environmental protection and actively soliciting public input in key areas of concern. The Tree Convocation as example was sponsored by the Sarasota Tree Advisory Council (STAC) and the Sarasota County Natural Resource Department.

**What has been done**

This event was facilitated by Extension staff and is an attempt to engage the community and promote a conversation to identify and prioritize issues that Sarasota County is facing regarding trees. Additionally, the event was held to obtain input from a broad cross-section of stakeholders on key tree and canopy related issues.

**Results**

The Tree Convocation was attended by 46 community members that generated over 70 separate ideas and tree related issues. The event consisted of dividing the room into 5 separate areas, each with a recording board, scribe and facilitator. Each area station represented one of the major areas of concern for the STAC. Members of the county's natural resource department acted as scribes while extension staff (4-H, FCS, and Horticulture) acted as facilitators at each station. The information gathered was used as a basis for the development of an online survey that will be used to prioritize tree related issues and act as the basis of the 2013 work plan for the Sarasota Tree Advisory Council. This information can now serve to better inform the STAC and ultimately their recommendations that are considered by the Board of County Commissioners.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

##### Outcome #2

###### 1. Outcome Measures

Change in Behavior Growth Management and Land Use Policy

Not Reporting on this Outcome Measure

##### Outcome #3

###### 1. Outcome Measures

Change in Condition Growth Management and Land Use Policy

###### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

###### 3a. Outcome Type:

Change in Condition Outcome Measure

###### 3b. Quantitative Outcome

Year	Actual
2012	5

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

###### **Issue (Who cares and Why)**

Building Green communities requires a great deal of thought and effort as well as expertise.

###### **What has been done**

One Florida State specialist in the areas of Wildlife Ecology and Conservation recently published recommendations on developing green communities.

###### **Results**

Based these recommendations on green communities, North Carolina Wildlife Federation adopted design, construction, and post-construction guidelines for a wildlife friendly development certification program (<http://www.ncwildcertify.com/>). This has a broad impact on developers and how they build green communities.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
608	Community Resource Planning and Development

#### Outcome #4

##### 1. Outcome Measures

Change in Knowledge Civic Engagement, Leadership, and Community Development

##### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2012	1012

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

###### Issue (Who cares and Why)

FAMU Community Partnerships: Florida A&M University's 1890 Rural Entrepreneurial Outreach Project (REOP) and Tallahassee Community College (TCC) Fostering Achievement Fellowship (FAF) Program

The Issue: Fellows (Community College Students) enrolled in (FAF) program - A community based collaborative effort of over 20 local and state organizations, established to address the overwhelming need for a comprehensive support structure to assist foster youth in their college journey as they "age-out" of foster care services.

FAMU's REOP partnered with the Fostering Achievement Fellowship Program at TCC to help the students view entrepreneurship as a compliment and/or alternative to traditional employment.

###### What has been done

What We Did: After the initial presentation of REOP at the Annual Fellowship Awards Banquet, two hour workshops were scheduled bi-weekly for three months. After covering five topics on Entrepreneurship, several students decided collaborate and create a business. The business developed by the students named Made by Us is now a Florida registered business. Made By Us began securing contracts quickly.

As the business grew other needs developed to include maintaining momentum for the business, increase visibility and recruit new students "teaching them the mission and goals of the business as well as developing the new FAF members entrepreneurial skills. REOP provided the

following opportunities, TCC-FAF Coordinator, Becky P. met the funders of the project during a USDA site review and shared the programs experience; facilitated an opportunity for student /co-founder Thomas F. and Becky P. to present their business journey at the Association of Extension Administrators? National Conference in Memphis, TN. REOP continues to offer ongoing technical assistance to Made by Us on all topics covering small business management and building business relationships that will help them grow their business.

**Results**

Results: The topic covered at the Association of Extension Administrators? National Conference in Memphis, TN was ?From Foster Care to Business Ownership? ? as described in the event?s poster contest. During the workshop, the Made By Us presenters provided insight on how they decided to develop a business to learn about entrepreneurship. They engaged the audience into experiences of young people in foster care and how entrepreneurship has helped them adjust in understanding new levels of opportunity. .

Impacts: In that the goal of the Foster Care Achievement Project Collaborators is to provide a comprehensive support structure to assist foster youth aging-out of foster care services the impacts of Made By Us provides positive and endless opportunities for the young people.

Through their business the collaborators can witness first-hand the business leadership skills developed in the students through Made By Us, Inc. These new business owners continue to gain experience and pursue contract opportunities through speaking engagements and odd jobs. Even a greater impact, is that have adopted a principle of ?paying it forward? ? by recruiting and teaching other young people how owning their own business can help them improve their lives an open a new world ? ?from being employed to being the employer.

**4. Associated Knowledge Areas**

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

**Outcome #5**

**1. Outcome Measures**

Change in Behavior Civic Engagement, Leadership, and Community Development

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

### 3b. Quantitative Outcome

Year	Actual
2012	588

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

The recent successful promotion of Bay County's public artificial reefs would not have happened without strong connection to Extension advisory committee volunteers.

#### What has been done

After only a short notification of deployment on a Friday afternoon, we were tasked with the logistics of finding a vessel for members of the press and local government leaders by Monday. One call to advisory members and we had our press boat. The County Public Information Officer made the connections for our guests while the Extension Agent prepared press packet based upon previous published articles highlighting Bay Counties Artificial Reef Program and the scientific use of artificial reefs to support fisheries and local economy. On a stormy August day, we dodge bad weather and made it to the deployment site. By the afternoon, two Panama City television stations had news stories that ran 9 times Tue - Fri. The total estimated viewership for the WMBB and WJHG TV is 620,000. The front page of the paper highlighted the deployment a large color photo crane deploying reef into water 10 nm south of St Andrew Bay Pass. Estimated Readership for the Panama City News Herald is 41,200. A total of 640 viewers observed on the Bay County Sea Grant website with over 3,300 views for the month of August. This coverage introduced the community to our new interactive website and laid the foundation for citizen monitoring and stewardship of Bay County's artificial reefs.

#### Results

Outcomes:

1. As a result of the communication channels and education programs of the agent, a partnership with Bay County, local city governments, local businesses, and the Bay County Chamber of Commerce will emerge to direct and support the delivery of coastal resiliency programs in 2012 and future years. (As the result of needs assessment). This will be evaluated and documented through meeting minutes and planned or completed activities.

\* Through the use of Sea Grant advisor meetings and planning. Bay County Emergency Services and Bay County Sea Grant partnered to present proposed continuity of operations training through the Bay County Chamber of Commerce. A meeting with Chamber Director, Education Coordinator and representatives from 2012-2013 Leadership Bay resulted in consideration as class project for 2013.

\* Sea Grant Resiliency Extension Specialist Thomas Ruppert has agreed to collaborate with Bay County Sea Grant to lead needs assessment activities through drafting a survey for local businesses, conducting focus team discussions, and conducting interviews of key leaders.

\* The agent met with representatives from Florida State University - Panama City (FSU-PC) seeking greater community involvement for local projects. FSU-PC has agreed in theory to provide interns enrolled emergency operations training to assist and guide business owners through continuity of operations (COOP) training. Additionally, other resources through existing Sea Grant network with the Marine Lab and personnel in Franklin County may be available.



2. Annually 25 community leaders and local government and will gain knowledge of Extension education resources leading to greater support for educational outreach. This will be measured through their volunteer activities and monetary support.

\* As a result of 3 overall advisory meetings and 6 program advisory meetings, members have provide support for local extension programs, through new marketing opportunities, in-kind donations, and opportunities to network with other organizations and businesses.

- o Local Walmart management agreed to post information regarding community monitoring of artificial reefs and the location of public reefs.

- o Received in-kind donation of plant liners and potting material from local blueberry producer to support ?Grasses in Classes? ?.

- o Bay County Extension invited to share the 150 Birthday of the Morrill Land Gant Act of 1862, and local Extension program highlights with 52 members of the Downtown Bay Rotary Club.

- o Sea Grant Extension was invited to share programming information with 35 members of the East Bay Rotary Club and Central Bay Rotary Club.

- o Sea Grant program advisory members donated vessel time and volunteer hours (82) worth over \$1,800

**4. Associated Knowledge Areas**

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

**Outcome #6**

**1. Outcome Measures**

Change in Condition Civic Engagement, Leadership, and Community Development

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	565

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

**Issue (Who cares and Why)**

As Home and Community Educators (HCE) Club membership increases, new members may be unfamiliar with the HCE organization at the District and State levels.

**What has been done**

Our members' participation in the District I HCE Annual Meeting exposes them to new Club program ideas and resources, provides them an opportunity to network with members from other counties, increases their understanding of how the HCE organization operates at the District and State levels, and strengthens the overall organization at the District level. The Club's leadership in various community service projects benefits the community, improves the quality of life for individuals and families in need, and raises community awareness of the HCE organization serving Washington and Holmes Counties.

**Results**

Success Stories:

During 2012, the Generations Home and Community Educators Club in Washington County earned the distinction of being the fastest growing HCE Club in Florida, as noted by FAHCE, Inc. leadership.

The members of the Generations Home and Community Education Club in Washington County have actively engaged in 15 different community service projects benefiting the local community and beyond in 2012, including school supply drives for area schools, diaper drives for local pregnancy and family centers, toiletry kits for homeless veterans, collecting: 145 pounds of food for the local food pantry, craft supplies for residents of a local group home for the mentally-challenged, greeting cards for St. Jude's Children's Research Hospital, eyeglasses for the Lions Club Eyesight Project, and used cell phones for domestic violence victims. The Club members also have assisted with the Washington County Youth Fair and the Holmes County Fair and have assumed greater leadership roles in program planning and member recruitment. organization

**4. Associated Knowledge Areas**

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

**Outcome #7**

**1. Outcome Measures**

Change in Knowledge Economic Development

Not Reporting on this Outcome Measure

**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**

<b>Year</b>	<b>Actual</b>
2012	74

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

**Issue (Who cares and Why)**

FAMU Economic Development: It is important to ensure local food security with agriculture and natural resource management strategies that enhance sustainable agroecological production, work to climate proof local food systems, and embrace benefits and important role of local small farm populations and their communities.

ISSUE: Use proactive strategies to enhance sustainability over the long term: developed an integrated paradigm focusing on participatory capacity building strategies that encourage small local- sustainable organic farms, transitioning to organic farming systems, and local community food systems, may impact the use of energy, reduce green house gas emissions, and influence climate change .

**What has been done**

OUTCOME: Identified needs and developed and implementing the Growers? Market Model and Approach for underserved farming populations. A participatory value-added alternative education - market strategy. Growers? Markets are small community markets that provide fresh produce to the community direct from local small farmers. Participant farmers receive market and quality farm product assistance. The markets serve as educational networks providing consumer information about local food resources, local eating/healthy eating, building your sustainable table, and farm strategies. Workshops and cooking demonstrations are held during market hours. A primary focus is to provide a local resource for farmers to provide fresh sustainably grown and organically grown produce to the community: Seasonal produce includes heirloom lettuce, cabbage, kale, collards, turnips, radish, tomatoes, peppers, peas, blue and red potatoes, pumpkins, squash, bell peppers, broccoli, cauliflower, ginger, lemongrass, herbs, beets, onions, garlicks, cucumbers, zucchini,

sweet potatoes, grapefruits, Satsumas, blackberries, blueberries, strawberries, apples, peaches, pears, grass-fed meats (beef, lamb, goat) pastured poultry, local eggs, cheeses, tupelo and wildflower honey, etc. Also fresh baked breads, handmade soaps, and more.

### **Results**

IMPACT: Developed and implemented ten (10) active Growers' Markets throughout the region. Consumers are provided an opportunity to purchase fresh local produce every day of the week, some days have two market opportunities. Growers' markets collaborators include The State of Florida Department of Health, State of Florida Department of Environmental Protection, neighborhood associations, community groups, and surrounding county's farmers. Provided information to assist in development of farmer CSAs (community supported agricultural strategy).

IMPACT: Growers' Markets information has been disseminated to over one million people each year. Farmers have reported incomes ranging from \$200 to 500.00/market opportunity; depended upon community economic environment.

IMPACT: A local conventional farmer participated in our capacity building efforts and received information about organic farming strategies including how to convert from conventional farming to organic farming systems. The farmer gained knowledge and changed farming practices to organic farming system methods including seed selection, alternative field preparation, fertilizers, amendments, and enabling beneficial insects, trap crops, pest management strategies, benefits of organics, etc. The farmer began providing produce at our market. The farmer developed several items that were provided under the Cottage Food Act Regulation. Success of these items and additional information enabled the farmer to build a licensed kitchen through which farmer produces products and provides them to local natural food stores and grows organic method produce for the growers' markets.

## **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
608	Community Resource Planning and Development
724	Healthy Lifestyle

### **Outcome #9**

#### **1. Outcome Measures**

Change in Condition Economic Development

#### **2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	51

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

**Issue (Who cares and Why)**

Not everyone has expertise in grant writing.

**What has been done**

An Extension Agent in Franklin county worked with the officers of the Franklin County Seafood Workers Association during a series of work sessions, consultations and coaching sessions to assist them with writing an oyster shelling grant request to meet the new FL Department of Agriculture and Consumer Services (FDACS) proposal requirements. The Franklin County Seafood Workers Association officers then wrote and submitted their \$150,000 shelling proposal to FDACS.

**Results**

Impacts:

- o The officers of the Seafood Workers Association wrote their proposal, submitted it to FDACS and it was approved and funded for the full \$150,000.
- o The funding was used to hire 300 harvesters and their boats to work on the four shelling projects conducted in Apalachicola Bay.
- o Each fishermen that worked was paid \$250/day.
- o The shelling project was completed in six days.

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
608	Community Resource Planning and Development

## **V(H). Planned Program (External Factors)**

### **External factors which affected outcomes**

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

### **Brief Explanation**

Florida communities are still being heavily impacted by the economic situation. Public higher education in Florida has lost more than 50% of state funding and has been impacted by other losses caused indirectly by the economic down turn. Issues related to Medicaid are also expected to impact us heavily in the areas of health care. Changes in state, county and federal appropriations can also affect the outcomes related to the Florida land-grant mission.

Because of limited resources in Florida and continuing devolution Extension programs can always be affected by changing public and governmental priorities leading to a reduction of county programs in high need areas. These can include loss of county and state appropriations.

Natural and national disasters can also affect the number of volunteers available to work with communities including individuals and government.

Florida is a state located in the tropics. Natural disasters such as tropical storms and hurricanes are common annual occurrences in this state. Severe weather conditions such as droughts frequently led to large-scale fires. We also have other weather extremes such as floods leading to large scale damage especially along the coastal regions. All of these can have a direct and indirect impact on Extension programs.

## **V(I). Planned Program (Evaluation Studies)**

### **Evaluation Results**

Community issues are important to Extension and many related to leadership, communication, growth management, and understanding policies and regulations fall under the mission of the landgrant university. Florida Extension has developed a Center for Public Issues Education (PIE) which is doing statewide surveys to provide stakeholder input into many issues impacting communities across the state.

Extension faculty work with community leaders as well as citizens to solve both civic and community issues leading to a better quality of life within a community. There are many programs being offered with the intention of maintaining and enhancing Florida communities. Some areas of interest in 2012 related to growth management and land use policy, citizen engagement, leadership, and community development and economic

development. Of programs that were surveyed, 1638 attendees increased their knowledge of issues and solutions within communities. 831, many of them involved in regulatory positions made changes and 621 felt that they made changes that impacted the broader community. Some of these resulted in changes to existing regulations that improved the well-being of the environment, resources and the well-being of citizens or led to better sustainability of a community.

### **Key Items of Evaluation**

Florida Extension has developed a new center called the Center for Public Issues Education (PIE). Although begun in 2006 in 2012 this center received separate state approbations because of its value to the state of Florida.

As a result of the PIE Center's efforts, we have been able to bring together communities and resource organizations in the Florida Panhandle and Alabama to work together to address needs as a result of the DWH oil spill. 65 representatives attended a community regional forum held across four sites in April. As a result of these efforts, grassroots community initiatives were developed, including an initiative to address the oyster collapse in Franklin county.

Other areas in which they are having an impact is related to the declining oyster population, and what Floridians think about water. Results from the different surveys completed by PIE can then be used by regulatory groups and lawmakers to understand what Florida residents really want as they make decisions impacting communities. More information on PIE can be found at <http://www.centerpie.com/>

**V(A). Planned Program (Summary)**

**Program # 8**

**1. Name of the Planned Program**

Ag sustainability and profitability leading to Global Food Security and reduced Hunger--Research

Reporting on this Program

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
201	Plant Genome, Genetics, and Genetic Mechanisms	0%	0%	5%	
202	Plant Genetic Resources	0%	0%	5%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%	0%	5%	
204	Plant Product Quality and Utility (Preharvest)	0%	0%	5%	
205	Plant Management Systems	0%	0%	5%	
212	Pathogens and Nematodes Affecting Plants	0%	0%	5%	
216	Integrated Pest Management Systems	0%	0%	5%	
302	Nutrient Utilization in Animals	0%	0%	5%	
306	Environmental Stress in Animals	0%	0%	5%	
307	Animal Management Systems	0%	0%	5%	
308	Improved Animal Products (Before Harvest)	0%	0%	5%	
311	Animal Diseases	0%	0%	5%	
312	External Parasites and Pests of Animals	0%	0%	5%	
313	Internal Parasites in Animals	0%	0%	5%	
402	Engineering Systems and Equipment	0%	0%	5%	
403	Waste Disposal, Recycling, and Reuse	0%	0%	5%	
404	Instrumentation and Control Systems	0%	0%	5%	
405	Drainage and Irrigation Systems and Facilities	0%	0%	5%	
501	New and Improved Food Processing Technologies	0%	0%	5%	
502	New and Improved Food Products	0%	0%	5%	
	<b>Total</b>	0%	0%	100%	

**V(C). Planned Program (Inputs)**

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



Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	40.0	0.0
Actual Paid Professional	0.0	0.0	15.3	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	209866	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	209866	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

Conduct research experiments

**2. Brief description of the target audience**

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

**3. How was eXtension used?**

N/A

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2012	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: 2012  
 Actual: 24

**Patents listed**

- 1.Method of Making Biochar-MgO Nanocomposite and its Application to Sorb P and As
- 2.Methyl Salicylate-Based Attractants for Vectors of Citrus Greening Disease
- 3.Biorational Design of Improved Fungal Biopesticides
- 4.Mutated GlyDH from B. Coagulans to Increase Production of D(-)-Lactic Acid
- 5.Citrus Tristeza Virus-Based Vectors for Foreign Gene Expression
- 6.Tomato Catechol-O-Methyltransferase
- 7.Mobile Plant Material Removal System for Harvested Citrus Crops
- 8.L-Malate Production by Metabolically Engineered E. Coli
- 9.Bed Bug Control Method Using Heat and Volatile Insecticides
- 10.Viral-based Transient-Expression Vector System For Trees That Allows Multiple Applications
- 11.Overexpression of Crystic Putative Oxidoreductase ucpA Increases Furtural Tolerance in Escherichia Coli Strains Engineered for the Production of Ethanol and Lactate
- 12.Mandarin Tree Named '950'
- 13.107, Peanut
- 14.Coleus Plant Named 'UF0843'
- 15.Coleus Plant Named 'UF08174'
- 16.Lantana Camara Plant Named 'UF-T3'
- 17.Lantana Camara Plant Named 'UF-T4'
- 18.Spain, Peanut
- 19.Eucalyptus Tree Named 'G5'
- 20.Peach Tree Named 'UFBest'
- 21.Pummelo Tree Named '5-1-99-5'
- 22.Caladium Plant Named 'UF-48-5'
- 23.Ruellia Plant Named 'R10-102'
- 24.Ruellia Plant Named 'R10-108'

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
Actual	0	1056	1056

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

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

**Outcome #1**

**1. Outcome Measures**

Increase plant Production through the development of improved plant production BMPs

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	0

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

**Issue (Who cares and Why)**

Bacterial diseases, urbanization, and other persistent factors have changed the Florida citrus industry. The success of the industry requires scion and rootstocks cultivars that are adapted to local conditons and are profitable.

**What has been done**

The purpose of this project is provide genetically improved scion and rootstock cultivars that will allow Florida citrus growers to remain competitive.

**Results**

Impact: We will be able to test genetic constructs for HLB/ACC resistance under field pressure, aimed at development of resistant cultivars. Additional new transgenics will be prepared to increase the number of resistance options, including phloem-expressed, targeted to HLB, and potential psyllid resistance. Confirmation of some canker resistant plants provides material for field level resistance evaluations. Gene-expression studies of tolerant/susceptible HLB-inoculated citrus may provide genetic targets to induce resistance and to develop markers for early disease detection. Knowledge of starch/sugar metabolism will increase understanding of HLB-pathogenesis. Verification of the roles of kumquat defense-related indicates new targets for canker-resistant cultivar development. Additional mapping for the ICGC project will make more valuable the coming citrus genome sequences. New rootstock/scion trials, as well as new hybrid plant materials, provide resources for selection of elite cultivars that will address the needs of the industry in the coming decade. Seedless, furanocoumarin-free and canker tolerant grapefruit hybrids provide new opportunities for cultivars that may avoid the demise of Florida's world-leading grapefruit industry. New seedless cultivars of specialty types may enable the fresh industry to regain dominance in the North American citrus market, resulting in increased profitability. Citrus genome sequencing projects, once complete, will provide an invaluable tool to

enable the research community to address disease and other production problems.

#### 4. Associated Knowledge Areas

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

#### Outcome #2

##### 1. Outcome Measures

Improve Plant Protection through the development of new science and BMPs

##### 2. Associated Institution Types

- 1862 Research

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2012	0

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

###### **Issue (Who cares and Why)**

Diseases are a major limiting factor in crop production in the Southeast. The high temperatures and moisture are very conducive to most diseases and their vectors. This project will develop sound IPM practices for the major diseases of row crops in the Southeast. At present, these are identified as 1) Asian soybean rust (ASR), 2) hardlock of cotton, 3) leaf spot (early and late) of peanut. Other disease of row crops in the southeast (including those caused by emerging pathogens) will be addressed as needed. This project was developed in close cooperation with the Peanut Research Initiative, Cotton Incorporated and North Central Soybean Research Program along with numerous researchers, extension specialists, and row crop farmers in the southeastern United States.

###### **What has been done**

The overall goal of this project is to utilize Integrated Pest Management (IPM) practices to help develop economical and environmentally sustainable production systems appropriate for the biological and social conditions of row crop production in the southeastern United States.

**Results**

Impact: The research resulted in a reduction of pesticide applications, improved disease control in field crops, and increased profits to farmers. By informing our farmers, extension agents, and fellow scientists about our findings through publications, presentations, and web sites the project has had a significant impact. on the reduction of pesticides applied to control soybean rust, increased yield in cotton in the southeast due to application of fungicides during flower to protect the bolls from pathogens, and development of alternative pest control strategies to create a value added component (peanut hay) to peanut production

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
201	Plant Genome, Genetics, and Genetic Mechanisms
204	Plant Product Quality and Utility (Preharvest)
212	Pathogens and Nematodes Affecting Plants
216	Integrated Pest Management Systems

**Outcome #3**

**1. Outcome Measures**

Improve Animal Production through the development of BMPs

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	0

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

**Issue (Who cares and Why)**

Reproductive inefficiency is one of the most costly and production-limiting problems facing both the dairy and cow-calf industries. b) Greater than 17.6% of all culled dairy cows were because of reproductive failure. c) More than 27% of beef cows are culled because of reproductive failure or reproductive problems. d) Losses that occur because of reproductive failure are partly a result of mismanagement of resources and lack of adopting appropriate technologies to sustain greater reproductive efficiencies.

**What has been done**

a) It is imperative to continue developing protocols that address concerns related to cattle reproductive efficiency through basic and applied research outlined in the objectives. b) Protocols developed should facilitate the use of fixed-time AI, and should result in increased adoption of these important management practices. c) Modifying reproductive management protocols to synchronize time of ovulation in lactating cows may substantially further reduce labor inputs for reproductive management d) Development of resynchronization strategies to submit cows failing to conceive to previous inseminations will further improve overall pregnancy rates in lactating dairy cows.

### Results

Impact: Inclusion of temporary calf removal resulted in no increase in pregnancy rates, but subsequent calf performance was poorer in calves exposed to 48 or 72 hour calf removal. Therefore, inclusion of calf removal to a progestin-based estrus synchronization protocol may result in decreased calf performance. Heifers developed on perennial peanut have similar weight performance and reproductive performance to heifers receiving a grain-based development supplement, but improved growth and reproductive performance compared to non-supplemented controls. Therefore, development of heifers on high quality legumes may be able to replace expensive grain-based supplements with legume hay during heifer development with little impact on heifer development outcomes.

## 4. Associated Knowledge Areas

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

### Outcome #4

#### 1. Outcome Measures

Improve animal protection through the development of new science and BMPs

#### 2. Associated Institution Types

- 1862 Research

#### 3a. Outcome Type:

Change in Knowledge Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2012	0



### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

Seasonal forage quantity and quality are factors limiting livestock production in Florida.

#### What has been done

This project will focus on identification of genetic traits of forages that are environmentally friendly and enhance Florida livestock production through improvements in forage quantity and quality.

#### Results

Impact: Plant genetic resources utilized by multiple scientists in Florida was used to develop new populations to advance breeding of sweet corn, turfgrasses, forages, lettuce, forestry species, grapes, small grains, citrus, tomato, peanuts and strawberries. These new cross combinations served to increase the adaptability of these species to Florida, or introduced new characteristics such as disease resistance. Without access to the valuable genetic resources the impacts of plant breeders in the state of Florida would be lessened.

### 4. Associated Knowledge Areas

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

### Outcome #5

#### 1. Outcome Measures

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

#### 2. Associated Institution Types

- 1862 Research

#### 3a. Outcome Type:

Change in Knowledge Outcome Measure

#### 3b. Quantitative Outcome

Year	Actual
2012	0

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

#### Issue (Who cares and Why)

Grasslands cover approximately 51% of the land earth's surface (Pearson and Ison, 1997) and are found mainly in Africa, Australia, South America, and North America. The majority of these areas are extensively grazed by livestock. The grazing systems used in different regions reflect the climatic and socio-economic aspects of the region because biological efficiencies within the system seldom are the sole driving force that gives rise to a particular grazing system. In Florida, grasslands cover approximately 4.5 million hectares, most of which is utilized by beef cattle. The beef industry is a very important component of Florida's agriculture industry. In 2003, Florida had a total of 950 thousand beef cows that accounted for \$348 million of income to Florida farmers and ranchers. In addition, the hay production is approximately 675,000 Mg per year and account for \$ 60 million of income per year. Rapid urbanization, higher land values, and the alternative of planting more profitable crops are leading to reduction of grassland areas. Producers may be faced with land constraints and may need to consider intensification of grassland management as a means of maintaining overall production on a decreasing land resource. Intensification of grazing systems is commonly associated with an integration of management practices, such as introduction of improved forage species, fertilization, and supplementation, among others.

#### **What has been done**

Therefore, there is a need to research forage management practices that will enhance the sustainability of grassland systems in the state of Florida.

#### **Results**

Impact: Diploid cultivars had greater herbage accumulation (HA) in the spring; however, Argentine had greater annual HA in 2010 and 2011. Plots grazed at 4 wk had approximately 50% greater HA than 2-wk grazing frequency. Argentine and Pensacola had greater root and rhizome mass than Tifton 9 and UF Riata when grazed every 2 wk, while Argentine had greater cover than any of the diploids when grazed at the 2-wk frequency. Results show that Argentine is a productive and persistent bahiagrass for beef cattle producers using limited N fertilization and frequent grazing in Florida. In addition, decreasing grazing frequency is an effective management practice to increase bahiagrass HA and persistence, particular the upright-growing Tifton 9 and UF Riata.

#### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
402	Engineering Systems and Equipment
405	Drainage and Irrigation Systems and Facilities

#### **Outcome #6**

##### **1. Outcome Measures**

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

##### **2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	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.

**What has been done**

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.

**Results**

Impact: Appropriate growing facilities have been constructed, and chicks are being purchased and raised to broiler stage. Educational programs are being developed. The pastured poultry program will provide a constant supply of poultry protein for the Haitian citizens. A sustainable agriculture program is being developed to enable the Haitian farmers to become self-sufficient and independent producers. The participating researchers are currently preparing a research summary of all projects being proposed for submission to granting agencies.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
308	Improved Animal Products (Before Harvest)
404	Instrumentation and Control Systems
501	New and Improved Food Processing Technologies
502	New and Improved Food Products

**Outcome #7**

**1. Outcome Measures**

Improve plant production by reducing pests

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	0

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

**Issue (Who cares and Why)**

Keeping valuable greenhouse crops safe from whiteflies and thrips may become easier for producers, thanks to a new study on banker plants from the University of Florida and U.S. Department of Agriculture.

A trend in biological pest control, banker plants provide food and shelter to natural enemies of target pests, giving the enemies a home base so they can provide continuous pest control.

**What has been done**

**Results**

In a study posted online this week by the journal Biological Control, researchers tested three ornamental pepper varieties as host plants for the well-known predatory mite *Amblyseius swirskii*. The mite dramatically reduced silverleaf whitefly populations, as well as chilli thrips and Western flower thrips, on greenhouse-raised green bean plants and pepper plants.

This approach could work for other greenhouse-grown vegetables, fruits, herbs and ornamentals.

The ornamental peppers tested were Masquerade, Red Missile and Explosive Ember; all performed about equally well.

The banker plant seed is commercially available, and so is the mite. The peppers are easy to grow.

In the study, researchers began by establishing colonies of *A. swirskii* mites on the ornamental pepper banker plants, and simultaneously infested greenhouse-raised green bean plants with silverleaf whiteflies, chilli thrips or a combination of chilli thrips and Western flower thrips. After

banker plants were moved into the greenhouses, the mites were free to disperse to the beans. Two weeks later, overall populations of the silverleaf whitefly were reduced to less than 1 percent of those on control plants; overall thrips populations were reduced to about 5 percent of those on control plants.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
216	Integrated Pest Management Systems

#### V(H). Planned Program (External Factors)

##### External factors which affected outcomes

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

##### Brief Explanation

Florida is still being heavily impacted by the economic situation. Public higher education in Florida has lost more than 50% of state funding and research has been impacted by other losses caused indirectly by the economic down turn including a reduction of funding opportunities available at the national level. In some cases faculty who leave or retire are not being replaced because of economic issues. Changes in state, county and federal appropriations can also affect the outcomes related to the Florida research land-grant mission. Because of limited resources in Florida and continuing devolution research projects can always be affected by changing public and governmental priorities policies, regulations and laws.

Natural and national disasters can also affect research field studies and multistate research. Natural disasters such as tropical storms and hurricanes are common annual occurrences in this state and often cause severe damage to plants and the environment in which active research is taking place.. Severe weather conditions such as droughts frequently led to large-scale fires which can also impact studies. In 2012 we were heavily impacted by severe storms and fires. We also had other weather extremes such as floods leading to large scale damage especially along the coastal regions and the panhandle of the state. All of these can have a direct and indirect impact on research.

#### V(I). Planned Program (Evaluation Studies)

##### Evaluation Results

UF/IFAS research has provided research in areas that improve global food security and reduce hunger. They have also increased agricultural profitability for Florida farmers, producers and all others involved in agriculture from field to fork.

### **Key Items of Evaluation**

Florida has the highest domestic per capita water use in the country, with landscape irrigation often estimated as accounting for 50 percent of that use but it can be above 70 percent during dry periods. Issues like water availability and quality, change in land use, and nutrient management are increasingly important--not only to landscape professionals, policy makers, and land managers, but to the general public. Every Florida resident has an opinion on water, and how it should be used.

The UF Center for Landscape Conservation and Ecology focuses much of its research on finding ways to reduce water use in the landscape. University of Florida researchers have been studying irrigation water savings with the use of technology known as "smart irrigation controllers." These devices use measurements, such as soil moisture content and weather variables, to tailor irrigation needs to plant demands. In other words, the landscape is telling the system how much water to use. This technology can help save water throughout Florida and the rest of the United States.

Smart controllers can save a lot of water and money. Research shows that using UF/IFAS irrigation time clock recommendations with an expanding disk rain sensor during rainy periods shows a 30 percent potential water savings and 15 percent savings during dry periods. Similarly, smart controllers have shown savings potential of 70 to 90 percent during normal rainfall periods on research plots and up to 40 percent during dry weather without compromising turfgrass quality. Studies on cooperating homes indicate 65 percent cumulative irrigation savings over two years.

Florida homeowners irrigated, on average, 2 to 3 times a week, using anywhere from 3 to 6 inches per month. If all new homes had advanced irrigation control, ranging from a low-tech rain sensor to a smart controller, reduction in water use could range from 15 percent or 33,000 gallons a year (with a rain sensor), to as high as 70 percent or 154,000 gallons per year (with a smart controller).

If this was extended to all new homes constructed from 2000 to 2005, savings would range from 14.5 billion gallons per year to 67.5 billion gallons per year, using a low-tech rain sensor or more advanced controller respectively. As a comparison, a typical family uses 60,000 to 70,000 gallons per year for cooking, cleaning, and consumption.

**V(A). Planned Program (Summary)**

**Program # 9**

**1. Name of the Planned Program**

Families, Youth, and Communities--research

Reporting on this Program

**V(B). Program Knowledge Area(s)**

**1. Program Knowledge Areas and Percentage**

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

**V(C). Planned Program (Inputs)**

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

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	1.0	0.0
Actual Paid Professional	0.0	0.0	3.3	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	17726	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	17726	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

Conduct Research Experiments

**2. Brief description of the target audience**

Families  
 Youth  
 Family support groups  
 Schools  
 community leaders  
 Businesses (public and private\_

**3. How was eXtension used?**

{No Data Entered}

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	0	0	0	0

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

**Patent Applications Submitted**

Year: 2012  
 Actual: 0



**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

<b>2012</b>	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Actual</b>	0	84	84

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Decrease crime and violence in youth populations
2	Improve individual and family resource management
3	Improve community institutions that lead to better quality of life.

**Outcome #1**

**1. Outcome Measures**

Decrease crime and violence in youth populations

Not Reporting on this Outcome Measure

**Outcome #2**

**1. Outcome Measures**

Improve individual and family resource management

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	0

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

**Issue (Who cares and Why)**

Need: In 2006, consumers coped with dropping home prices for existing housing and large increases in energy prices. The unemployment rate remained fairly stable at around 4.7% in 2006. Credit card delinquencies were starting to creep back up from the recently lower levels. Inflation edged slightly higher but was expected to moderate in 2007 (Strauss & Engel, 2007). Continuing a decade long trend, the rate of personal saving of American households is declining. In June 2007, personal saving as a percentage of disposable personal income was 0.6 percent (Bureau of Economic Analysis, 2007). Saving from current income may be near zero or negative when outlays are financed by borrowing (including borrowing financed through credit cards or home equity loans), by selling investments or other assets, or by using savings from previous periods. Families that lack adequate savings can find it difficult, if not impossible, to achieve and maintain long-term financial stability. Without a financial cushion, families have little protection against the adverse effects of income loss due to unemployment, long-term illness, or disability or death of a primary income earner (Schuchardt, 2002). Insufficient savings can also have adverse consequences for the community. Home or business ownership, important elements in the economic viability of local communities, are difficult to achieve without savings (Schaeffer, 2002). In times of economic downturn, loan default or bankruptcy become more likely among those who have not been savers, shifting the burden of economic loss to the community.

**What has been done**

Furthermore, this study relates directly to Community Vitality, a national research priority of the Agricultural Experiment Station Committee on Organization and Policy. Financially secure families are better able to contribute to their local economy by owning homes, starting businesses, and avoiding bankruptcy. In this respect, family financial security is a cornerstone of community economic viability Outcomes or projected Impacts: Understanding of savings behavior in low and moderate income households Understanding of specific factors that contribute to ability and/or willingness in low and moderate income households to save Improved educational programming to empower low and moderate income households to start saving or increase their savings.

**Results**

Impact: Impact Statements: The number of discussions about personal finance parents have with offspring while they are being reared increases the likelihood of respondents planning their spending and having written goals, practicing recommended financial management behaviors and a low level of anxiety are likely to encourage saving regularly. Saving regularly is a predictor in whether low to moderate income consumers have life insurance. Economic and sociological factors explained whether respondents had a savings or investment account Economic factors impacting the likelihood of having a saving account included age and using selected financial practices; while education, gross income and net worth, impacted the likelihood of having both a savings account and an investment account The sociological factor associated with saving was the increased number of information sources used in making financial decisions No psychological factors were significant to having a savings and investment account

**4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
801	Individual and Family Resource Management
806	Youth Development

**Outcome #3**

**1. Outcome Measures**

Improve community institutions that lead to better quality of life.

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
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### 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.

#### What has been done

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.

#### Results

Impact: Although this project did not serve as the primary motivator, the US Forest Service recently assembled a Florida National Scenic Trail Advisory Council, which is designed to more strategically plan the Florida National Scenic Trail (FNST). The FNST visitor assessment showed that although the Trail hosts many visitors, agencies would like to diversify this audience to include more families, tourists, and non-traditional type users. Data from this study are being used to identify existing use levels and the types of use, which then allows the Advisory Council to focus in on specific research objectives. Using this study's data, a Florida National Scenic Trail Symposium was conducted with approximately 150 attendees. The symposium alerted volunteers and hikers to upcoming planning options for the FNST and enlisted their input in the process.

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
802	Human Development and Family Well-Being
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
805	Community Institutions, Health, and Social Services

## **V(H). Planned Program (External Factors)**

### **External factors which affected outcomes**

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

### **Brief Explanation**

Florida is still being heavily impacted by the economic situation. Public higher education in Florida has lost more than 50% of state funding and research has been impacted by other losses caused indirectly by the economic down turn including a reduction of funding opportunities available at the national level. In some cases faculty who leave or retire are not being replaced because of economic issues. Changes in state, county and federal appropriations can also affect the outcomes related to the Florida research land-grant mission. Because of limited resources in Florida and continuing devolution research projects can always be affected by changing public and governmental priorities policies, regulations and laws.

Natural and national disasters can also affect research field studies and multistate research. Natural disasters such as tropical storms and hurricanes are common annual occurrences in this state and often cause severe damage to plants and the environment in which active research is taking place.. Severe weather conditions such as droughts frequently led to large-scale fires which can also impact studies. In 2012 we were heavily impacted by severe storms and fires. We also had other weather extremes such as floods leading to large scale damage especially along the coastal regions and the panhandle of the state. All of these can have a direct and indirect impact on research.

## **V(I). Planned Program (Evaluation Studies)**

### **Evaluation Results**

Communities and the needs of communities has been identified in the Research and Extension roadmaps as a majority priority in getting Florida back to an economically viable level. For this reason most research could fit into this priority area if it leads to a better economy or jobs. Much more research will be taking place in t his area in the future.

### **Key Items of Evaluation**

#### **Community Health**

The research team is currently completing the final year of the Rural Lifestyle Intervention Treatment Effectiveness Trial (Rural LITE), which is a follow-up to the Treatment of Obesity in Underserved Rural Settings (TOURS) study (2003-07), which was successful in reaching weight loss goals and improving health parameters such as blood lipids, blood glucose, and blood pressure. **A refereed journal article evaluating the cost-**

**benefit of TOURS was published in the Journal of the Academy of Nutrition and Dietetics September 2012.** Rural LITE (2008-13) is examining three levels of intensity of treatment to identify the minimum intensity required to produce clinically meaningful, long-term weight reduction, and therefore, the most viable and effective program that can be widely applied in the Extension setting.

**V(A). Planned Program (Summary)**

**Program # 10**

**1. Name of the Planned Program**

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

Reporting on this Program

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
901	Program and Project Design, and Statistics	0%	0%	34%	
902	Administration of Projects and Programs	0%	0%	33%	
903	Communication, Education, and Information Delivery	0%	0%	33%	
	<b>Total</b>	0%	0%	100%	

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	0.3	0.0
Actual Paid Professional	0.0	0.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	8944	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	8944	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	8944	0

**V(D). Planned Program (Activity)**



**1. Brief description of the Activity**

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

**2. Brief description of the target audience**

County and state faculty  
government  
students

**3. How was eXtension used?**

{No Data Entered}

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2012	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: 2012  
Actual: {No Data Entered}

**Patents listed**  
{No Data Entered}

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2012	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.

### **Outcome #1**

#### **1. Outcome Measures**

Improve project and program design

Not Reporting on this Outcome Measure

### **Outcome #2**

#### **1. Outcome Measures**

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

Not Reporting on this Outcome Measure

### **Outcome #3**

#### **1. Outcome Measures**

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

Not Reporting on this Outcome Measure

### **V(H). Planned Program (External Factors)**

#### **External factors which affected outcomes**

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

#### **Brief Explanation**

Florida is still being heavily impacted by the economic situation. Public higher education in Florida has lost more than 50% of state funding and research has been impacted by other losses caused indirectly by the economic down turn including a reduction of funding opportunities available at the national level. In some cases faculty who leave or retire are not being replaced because of economic issues. Changes in state, county and federal appropriations can also affect the outcomes related to the Florida research land-grant mission. Because of limited resources in Florida and continuing devolution research projects can always be affected by changing public and governmental priorities

policies, regulations and laws.

Natural and national disasters can also affect research field studies and multistate research. Natural disasters such as tropical storms and hurricanes are common annual occurrences in this state and often cause severe damage to plants and the environment in which active research is taking place.. Severe weather conditions such as droughts frequently led to large-scale fires which can also impact studies. In 2012 we were heavily impacted by severe storms and fires. We also had other weather extremes such as floods leading to large scale damage especially along the coastal regions and the panhandle of the state. All of these can have a direct and indirect impact on research.

**V(I). Planned Program (Evaluation Studies)**

**Evaluation Results**

not reporting

**Key Items of Evaluation**

not reporting

**V(A). Planned Program (Summary)**

**Program # 11**

**1. Name of the Planned Program**

climate Change--research

Reporting on this Program

**V(B). Program Knowledge Area(s)**

**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
132	Weather and Climate	0%	0%	95%	
205	Plant Management Systems	0%	0%	5%	
	<b>Total</b>	0%	0%	100%	

**V(C). Planned Program (Inputs)**

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

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	20.0	0.0
Actual Paid Professional	0.0	0.0	33.3	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	407708	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	407708	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

Florida has many projects planned in the area of climate change. Some projects will relate to the development of climate information and decision support systems for the Southeastern USA. Other

2012 University of Florida Research and Extension and Florida A&M University Extension Combined Annual Report of Accomplishments and Results  
 projects will look at the development of cultivars that do well in changing climate conditions.

**2. Brief description of the target audience**

Agricultural Producers/growers  
 Florida residents/ Stakeholders  
 government  
 industry  
 regulatory agencies

**3. How was eXtension used?**

eXtension was not used in this program

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	0	0	0	0

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

**Patent Applications Submitted**

Year: 2012  
 Actual: {No Data Entered}

**Patents listed**

{No Data Entered}

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
<b>Actual</b>	0	3	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}





**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Develop new climate information that will contribute to an improved agricultural ecosystem in the SE USA.
2	Develop Climate decision support systems that improve quality of life, increase profitability and decrease economic risk.

## **Outcome #1**

### **1. Outcome Measures**

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

### **2. Associated Institution Types**

- 1862 Research

### **3a. Outcome Type:**

Change in Knowledge Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	0

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

#### **Issue (Who cares and Why)**

The southern Coastal Plain region of the southeastern United States delineates the geographic area comprised of southern Georgia, southern Alabama and northern Florida. The southern Coastal Plain experiences a mild temperate climate and can support a number of tropical and semi-tropical forage plant species. This region is located at the extreme limits for both tropical and temperate forage species. Plant breeding has produced varieties that are able to tolerate the heat and drought stress which typifies the variable southern environment. New cool season varieties have been developed with improved disease and insect resistances, allowing them to survive the pest pressures. Tropical perennial forages, like bahiagrass (*Paspalum notatum*), bermudagrass (*Cynodon dactylon*), rhizoma (perennial, *Arachis glabrata*) peanut and limpograss (*Hemarthria altissima*) also are well adapted to the southern Coastal Plain and Peninsular Florida, since severe winters are rare and these plants persist through the occasional hard freezes. Plant breeding for cold tolerance and winter survival has improved their adaptation. The southern Coastal Plain region and parts of Peninsular Florida have an environment that is conducive to year-round grazing utilizing both tropical and temperate forage plant species. New or improved forages that grow successfully in these regions should benefit forage systems throughout Florida and have significant impact on the Florida livestock industry. Further breeding improvement of perennial temperate forage species, such as tall fescue or red clover, would greatly benefit the livestock industry in the southern Coastal Plain region and Peninsular Florida. Selecting for fall-season production in perennial warm season grasses, like bahiagrass, and bermudagrass, would help fill the void in fall season forage production for this region. Developing forage varieties that provide long season or perennial production would have significant impact on all livestock systems throughout the southern Coastal Plain region and Peninsular Florida.

#### **What has been done**

The purpose of this project is to integrate several Florida breeding programs with other southern based programs into a cohesive effort to develop varieties that fill the void in fall season forage

production. Recurrent selection and pedigree breeding will be used to develop new southern forage cultivars in the UF North Florida Forage Breeding Program. An emphasis will be placed on breeding for desirable physiological traits, such as photoperiod response and cold tolerance. Southern forages emphasized in this program will include bahiagrass, small grains/ryegrass, and perennial peanut. The proposed research also contains a coordinated effort with other forage programs in the region to develop and evaluate several other important forage species adapted to the southern Coastal Plain and Peninsular Florida.

### Results

Impact: Select winter forages of oat, ryegrass and triticale cultivars/experimental lines for differences in yield, seasonal yield distribution, forage quality, soluble sugars, and N and P content among cultivars and among forage types. In 2011-12, field grown winter forages were harvested at 4 wk intervals and rye, ryegrass, oat and triticale cultivars/experimental lines were analyzed for differences in yield, seasonal yield distribution, forage quality, soluble sugars, and N and P content among cultivars and among forage types. Included in this study were oat cultivars/experimental lines-LA99016, Horizon 201, FL02011, and FL05006; rye cultivars/experimental lines-AGS 104, FL401, FL2X 405, FL4X 404, SYN-T, ryegrass cultivars/experimental lines-Marshall, Jumbo and Earlyploid and FL-ONA 4X, and FL-MAR 4X; and triticale cultivars-Trical 2700, Monarch, Trical 342, FL01143 awnless and FL01008. Cool-season forages provided excellent means to provide high quality greenchop and silage during the winter period. Seasonal distribution of forages is distinctly different among cultivars and among forage types. Oat forage generally produces earlier forage than ryegrass and triticale. Ryegrass tends to be higher in TDN, than oat and triticale. Soluble sugars, in general, are higher for oat cultivars, although more stable over the growing season for ryegrass. Knowledge of the best cultivars and combinations of cool-season forage types and cultivars should be useful for livestock. Cultivar selection influences the distribution of forage yield over the season influenced the amount of N and P removal, an important environmental concern for many of our southeastern dairies. Winter forages, like oat, rye, ryegrass and triticale vary in their time of maximum forage production and distribution of yield over the winter months. In 2011-2012 four new oat cultivars: LA99017, LA05006, FL02011, and Cantara(LSU co-developers), a dual-purpose perennial peanut, Cowboy (UGA as lead institution) and a new native grass cultivar, Purple Haze (co-developed with USDA-NRCS) were released from the Forage Breeding Program at UF.

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
132	Weather and Climate
205	Plant Management Systems

### Outcome #2

#### 1. Outcome Measures

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

Not Reporting on this Outcome Measure

## **V(H). Planned Program (External Factors)**

### **External factors which affected outcomes**

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

### **Brief Explanation**

Florida is still being heavily impacted by the economic situation. Public higher education in Florida has lost more than 50% of state funding and research has been impacted by other losses caused indirectly by the economic down turn including a reduction of funding opportunities available at the national level. In some cases faculty who leave or retire are not being replaced because of economic issues. Changes in state, county and federal appropriations can also affect the outcomes related to the Florida research land-grant mission. Because of limited resources in Florida and continuing devolution research projects can always be affected by changing public and governmental priorities policies, regulations and laws.

Natural and national disasters can also affect research field studies and multistate research. Natural disasters such as tropical storms and hurricanes are common annual occurrences in this state and often cause severe damage to plants and the environment in which active research is taking place.. Severe weather conditions such as droughts frequently led to large-scale fires which can also impact studies. In 2012 we were heavily impacted by severe storms and fires. We also had other weather extremes such as floods leading to large scale damage especially along the coastal regions and the panhandle of the state. All of these can have a direct and indirect impact on research.

## **V(I). Planned Program (Evaluation Studies)**

### **Evaluation Results**

Florida is involved in a great deal of research related to climate because of our tropical conditions.

### **Key Items of Evaluation**

#### **Climate research**

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/discretionary outdoor water use, reduction of the use of potable water for non-potable applications, and the adoption of practices that minimize the effect of urban development on water quality can minimize or ameliorate the human impact on natural resources in the region.

Outputs for this project during the 2011-2012 period include education workshops (1), in-service training workshops (2), presentation of recent research at professional conferences (3), and the production of multi-state educational materials (4)

Impact: This project produced primarily changes in knowledge. Knowledge of Florida extension personnel was improved on the topics of climate variability and change and numeric nutrient criteria. Knowledge was improved by municipal employees that work in storm water and wastewater issues on the topic of numeric nutrient criteria. Knowledge was improved by stakeholders in the Apalachicola-Chattahoochee-Flint River basin in Alabama, Georgia, and Florida on the impact of seasonal climate on regional drought.

**V(A). Planned Program (Summary)**

**Program # 12**

**1. Name of the Planned Program**

Nutrition and human health --Research

Reporting on this Program

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
701	Nutrient Composition of Food	0%	0%	10%	
702	Requirements and Function of Nutrients and Other Food Components	0%	0%	30%	
703	Nutrition Education and Behavior	0%	0%	10%	
704	Nutrition and Hunger in the Population	0%	0%	10%	
723	Hazards to Human Health and Safety	0%	0%	10%	
724	Healthy Lifestyle	0%	0%	20%	
802	Human Development and Family Well-Being	0%	0%	10%	
	<b>Total</b>	0%	0%	100%	

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	1.0	0.0
Actual Paid Professional	0.0	0.0	3.3	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	72959	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	72959	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

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

**2. Brief description of the target audience**

Florida residents  
parents and children

**3. How was eXtension used?**

{No Data Entered}

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2012	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: 2012

Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

<b>2012</b>	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Actual</b>	0	3	3

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}



**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

O. No.	OUTCOME NAME
1	Identified ways to increase acceptance of sustainable change in eating and exercise
2	Increase health through nutrition education
3	Reduce the risk of mosquito borne illness

### **Outcome #1**

#### **1. Outcome Measures**

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

Not Reporting on this Outcome Measure

### **Outcome #2**

#### **1. Outcome Measures**

Increase health through nutrition education

#### **2. Associated Institution Types**

- 1862 Research

#### **3a. Outcome Type:**

Change in Knowledge Outcome Measure

#### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	0

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

##### **Issue (Who cares and Why)**

Eating more fruits and vegetables promotes better health by preventing many types of chronic diseases such as cancers and heart diseases. Florida ranks 2nd and 3rd for fruit or vegetable production. Many of the produces are unique to the subtropical climate. Phytonutrients are natural components in fruits and vegetables that are thought to be responsible for their health benefits. Most of phytonutrients also act as antioxidants.

##### **What has been done**

This research will uncover the antioxidant capacities and phytonutrients in Florida-grown fruits and vegetable. New strategies will be developed to extend the shelf life of those produces and preserve the beneficial phytonutrients. Obesity, hypertension, and high blood level of cholesterol are severe threats to the public health. High-fat and high-fructose diet can cause those conditions, but fruits and vegetables can prevent them. Cell culture models will be designed to simulate such a situation in order to test the preventative efficacy of fruits and vegetables.

##### **Results**

Impact: Four peer reviewed papers have been published and presented at the annual food and nutrition meetings. The first international meeting on functional foods was successfully held at the department in May 2011. This three-day event gave faculty the opportunity to exchange ideas and gave graduate students the opportunity to meet researchers from different countries. Three graduate students and one undergraduate student were supported by the same program to travel to France for two weeks. Students visited universities in three cities and learned the international development of functional foods. We continue to make progress on phytochemical research. We found abscisic acid enhanced the phytochemical content of muscadine grapes but did not affect high bush blueberries. We also reported that polyphenols from grapes and berries inhibited protein glycation by scavenging harmful carbonyls.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior

**Outcome #3**

**1. Outcome Measures**

Reduce the risk of mosquito borne illness

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	0

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

**Issue (Who cares and Why)**

Arboviral surveillance is an important component of the Florida Medical Entomology Laboratory's (FMEL) legislatively mandated mission to conduct research to serve Florida residents and mosquito control programs. The economic impact of mosquito-borne diseases on Florida Counties cannot be easily measured. The confusion, expense, and panic associated with an epidemic that seemingly arises out of nowhere, similar to the 1999 New York City WN epidemic, is unacceptable. Epidemics of some mosquito-borne viruses are predicable. For example, the FMEL and Florida surveillance programs indicated the risk of epidemic SLE transmission in south Florida in the early summer of 1990, eight weeks prior to the first human case. While it is possible to prevent all arboviral cases in humans, domestic animals, and wildlife, it is possible, through early warning, to mitigate the impact that these important pathogens have on the economy of Florida and to more appropriately manage the health and well-being of Florida

### What has been done

The purpose of this proposal is to continue the University of Florida, FMEL research dealing with the monitoring and prediction of mosquito-borne disease outbreaks within the state.

### Results

Impact: Infection of humans, domestic animals, and wildlife by mosquito transmitted viruses and other pathogens poses a significant public health threat in Florida. The development of long term disease surveillance monitoring protocols at the UF, FMEL allows the real-time prediction and reporting (at [http://mosquito.ifas.ufl.edu/MWTD Risk Model.htm](http://mosquito.ifas.ufl.edu/MWTD_Risk_Model.htm)) of existing pre-epidemic conditions that suggest epidemic and epizootic transmission is possible. Knowledge and publication of these conditions early in the year provides sufficient time for appropriate public health responses including vector control, media contact, and the issuance of Medical Advisories and Medical Alerts prior to the onset of epidemic and epizootic disease transmission.

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
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 still being heavily impacted by the economic situation. Public higher education in Florida has lost more than 50% of state funding and research has been impacted by other losses caused indirectly by the economic down turn including a reduction of funding opportunities available at the national level. In some cases faculty who leave or retire are not being replaced because of economic issues. Changes in state, county and federal appropriations can also affect the outcomes related to the Florida research land-grant mission. Because of limited resources in Florida and continuing devolution research projects can always be affected by changing public and governmental priorities policies, regulations and laws.

Natural and national disasters can also affect research field studies and multistate

research. Natural disasters such as tropical storms and hurricanes are common annual occurrences in this state and often cause severe damage to plants and the environment in which active research is taking place. Severe weather conditions such as droughts frequently led to large-scale fires which can also impact studies. In 2012 we were heavily impacted by severe storms and fires. We also had other weather extremes such as floods leading to large scale damage especially along the coastal regions and the panhandle of the state. All of these can have a direct and indirect impact on research.

## **V(I). Planned Program (Evaluation Studies)**

### **Evaluation Results**

Nutrition plays an important role in human health. Keep the population safe from contaminated foods and reducing obesity through better research in the impact food plays in human obesity are important areas of research for UF/IFAS.

### **Key Items of Evaluation**

#### **Food Safety**

With the declining proportion of food expenditure relative to household income, more knowledge about the health benefit of food, increasing awareness of food-borne disease and more concerns about the environment, consumers are increasingly demanding foods that are assured to be healthier, safer, more palatable, and more environment or animal friendly. An accurate estimate of consumer preference and accurate prediction of consumer purchase behavior based on quality attributes is the premise to know what and how to satisfy consumers' demand for food quality. Wrong estimates of consumer preferences will lead to faulty or inefficient government policy and failed market strategy, which may result in economic loss to society, the food industry, production agriculture, and taxpayers. However, accurately estimating consumer preferences is difficult. This task is hindered by the complicated relationships among food quality attributes and the lack of standard research methods to truly reveal consumer preferences for product quality. This project will investigate the interactions between different types of food product attributes and explore the divergence in consumer preferences gained from different methods. The results will provide needed information to policy makers and industry who are interested in consumer preferences as well as benefit researches using those methods to study consumer preferences.

**Impact:** Accurately identifying consumer demand helps develop more efficient markets and policies that improve social welfare. The study of farmers' market consumer helps future farmers' market development by determining the most important factors affecting consumer shopping at the farmers' market. The study on Chinese consumer preference for orange juice help juice industries in the U.S. to gain market opportunities by providing the products that are most likely accepted by Chinese consumers. The third study help develop new methods or approaches to estimate consumer willingness to pay by determining the most important factors that may affect the estimates from different methods.

#### **Reducing obesity**

Treatment of overweight in young people is challenging and involves addressing the family environment as well as individual lifestyle choices, particularly among younger children who often have minimal control over their meal and snack options. IFAS Extension specialistson the Extension Family Lifestyle Intervention Project (E-FLIP for Kids)(2009-14), which is studying family-based and parent-only behavioral interventions for weight management in children 7-12 years of age at Extension offices in medically underserved

rural counties. This project is informing the development and implementation of Extension outreach activities to address the growing problem of childhood obesity in Florida.

**V(A). Planned Program (Summary)**

**Program # 13**

**1. Name of the Planned Program**

Sustainable Energy--Research

Reporting on this Program

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
201	Plant Genome, Genetics, and Genetic Mechanisms	0%	0%	30%	
202	Plant Genetic Resources	0%	0%	10%	
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%	30%	
	<b>Total</b>	0%	0%	100%	

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	4.0	0.0
Actual Paid Professional	0.0	0.0	24.4	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	326046	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	326046	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

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

**2. Brief description of the target audience**

Residents of Florida  
 Growers and producers  
 Fuel producers  
 Industry

**3. How was eXtension used?**

{No Data Entered}

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2012	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: 2012  
 Actual: 0

**Patents listed**



**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

<b>2012</b>	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Actual</b>	0	21	21

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

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

### **Outcome #1**

#### **1. Outcome Measures**

Demonstrate potential of energy crops

#### **2. Associated Institution Types**

- 1862 Research

#### **3a. Outcome Type:**

Change in Knowledge Outcome Measure

#### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	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.

##### **What has been done**

This project is aimed at improving maize and sorghum as feedstocks for bioenergy production.

##### **Results**

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

#### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
201	Plant Genome, Genetics, and Genetic Mechanisms
202	Plant Genetic Resources
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems

## **Outcome #2**

### **1. Outcome Measures**

Refine and develop new process technologies

### **2. Associated Institution Types**

- 1862 Research

### **3a. Outcome Type:**

Change in Knowledge Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	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.

#### **What has been done**

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.

#### **Results**

Impact: 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. Myriant Technologies is constructing 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. At the Biofuels Pilot Plant on campus, additional research has made significant progress in reducing the complexity and increasing the efficiency of lignocellulose-based bioprocesses. Scale-up processing has improved from 10L fermentations to 100L and the development of the seed train to be used for full-scale industrial fermentations (more than 30,000 L) are now being optimized. Presently, the amount of steps for seed cultivation has been reduced and some conditions for seed growth have been established. Construction of the new state funded research facility, the Stan Mayfield Biorefinery Pilot Plant is finished and all machinery is undergoing testing. This facility is expected to be fully operational. It 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

#### Outcome #3

##### 1. Outcome Measures

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

##### 2. Associated Institution Types

- 1862 Research

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2012	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.

###### **What has been done**

This project will bring together public, private, and commercial entities to develop new technology to address the need for new energy sources.

###### **Results**

Impact: Miscanthus, giant reed, erianthus, sugarcane, elephantgrass, and energycane were compared in regional trials throughout Florida. Biomass yield was quantified in November 2009 and 2010 and in August and November 2011 and 2012. Yields of elephantgrass, energycane, erianthus, and sugarcane were not different in 2009, but all were greater than giant reed and miscanthus. In 2010, yields were greater for elephantgrass, energycane, and sugarcane at Citra, but erianthus performed better and elephantgrass worse at Ona. Drier weather at Ona resulted in reduced yields in 2010 vs. 2009. Data from 2011 and 2012 are currently being summarized and

assimilated into publications. In addition, research is underway to measure the soil carbon contribution of these bioenergy grasses. Samples will be taken in January 2013 to represent the effects of four years of bioenergy crop production. Characterization of water use occurred in energycane, elephantgrass, and giant reed. Energycane and elephantgrass produced more biomass per unit of water thanIn addition, we will be able to couple seasonal crop water use data with yield data (e.g., biomass, lignocellulose and/or simple sugars) to estimate ethanol produced per unit of water used by the crop during production. Results indicate that energycane and elephantgrass produce more biomass per unit of water than does giant reed. Elephantgrass had the greatest water-use efficiency of all species tested. Graduate student Arkorn Soukiew included these data in his thesis that was completed during 2012. Graduate student Chae-In Na has conducted two years of research evaluating the effect of harvest frequency and timing on biomass yield and composition of two elephantgrasses (UF-1 and Merkeron) and L79-1002 energycane. There was no effect of harvest frequency in either year, but UF-1 elephantgrass outyielded all other grasses. Theoretical ethanol yields were greater for UF-1 than the other grasses in the test. UF-1 appears to be well qualified for cultivar release.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
202	Plant Genetic Resources
205	Plant Management Systems

#### Outcome #4

##### 1. Outcome Measures

Define the economic values of energy production

Not Reporting on this Outcome Measure

#### V(H). Planned Program (External Factors)

##### External factors which affected outcomes

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

##### Brief Explanation

Florida is still being heavily impacted by the economic situation. Public higher education in Florida has lost more than 50% of state funding and research has been impacted by other losses caused indirectly by the economic down turn including a

reduction of funding opportunities available at the national level. In some cases faculty who leave or retire are not being replaced because of economic issues. Changes in state, county and federal appropriations can also affect the outcomes related to the Florida research land-grant mission. Because of limited resources in Florida and continuing devolution research projects can always be affected by changing public and governmental priorities policies, regulations and laws.

Natural and national disasters can also affect research field studies and multistate research. Natural disasters such as tropical storms and hurricanes are common annual occurrences in this state and often cause severe damage to plants and the environment in which active research is taking place.. Severe weather conditions such as droughts frequently led to large-scale fires which can also impact studies. In 2012 we were heavily impacted by severe storms and fires. We also had other weather extremes such as floods leading to large scale damage especially along the coastal regions and the panhandle of the state. All of these can have a direct and indirect impact on research.

## **V(I). Planned Program (Evaluation Studies)**

### **Evaluation Results**

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

### **Key Items of Evaluation**

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.

Impact: Down-regulation of lignin biosynthesis pathway enzymes and/or in planta expression of cell wall degrading enzymes will increase the efficiency of bio-ethanol production from abundant ligno-cellulosic sugarcane residues. Transgenic sugarcane lines with integration of different RNA interference cassettes for lignin biosynthetic genes were generated in this project. Transgenic sugarcane lines with RNAi suppression of COMT suppressed successfully lignin biosynthesis as indicated by reduced lignin content and altered lignin composition. Subsequent experiments demonstrated the effects of target gene suppression on plant performance under field conditions and biomass quality. Findings allowed to correlate altered lignin in sugarcane with fermentable sugar yields as well as plant performance. A moderate reduction in lignin (4 to 5%) increased the saccharification efficiency by 19-20% without compromising 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. Accumulation of the hyperthermostable GH10 xylanase in sugarcane leaves supported the conversion of sugarcane xylan to fermentable xylobiose. Suppression of flowering may increase the production of vegetative biomass and

the yield of sucrose. This project also supported the development of improved genetic transformation protocols for sugarcane reducing the time in tissue culture and resulting in better performance of the resulting transgenic plants. Interspecific hybrids between napiergrass and pearl millet were compared with the napiergrass cultivar Merkeron and recently generated napiergrass breeding lines regarding biomass production. One of the interspecific hybrids and several of the napiergrass breeding lines produced significantly more biomass than Merkeron. In contrast to Merkeron, interspecific hybrids were sterile and did not produce wind dispersed seeds and several high yielding napiergrass breeding lines flowered late in the season when cold temperatures prevented formation of viable seeds. Sterile, interspecific hybrids or late flowering hybrids of this vegetatively propagated biofuel and forage crop will increase biosafety of feedstock production by eliminating the rapid spread of this species through wind dispersed seeds. Higher biomass yields of the superior hybrids will contribute to an economically and environmentally sound feedstock production system. This improved germplasm will be valuable to the biofuels industry and as forage crop in subtropical regions. Bahiagrass persists well in Florida with low inputs, improving the turf quality of bahiagrass will facilitate turf management and enhance the environmental benefits of turf by reducing input requirements. The above described change in knowledge resulted in one patent application, six peer reviewed publications and numerous abstracts and invited presentations at national and international conferences as well as additional grant funding from federal and private industry sources. FLA-AGR-004913



**V(A). Planned Program (Summary)**

**Program # 14**

**1. Name of the Planned Program**

Food Safety--Research

Reporting on this Program

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	0%	0%	33%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	0%	0%	33%	
723	Hazards to Human Health and Safety	0%	0%	34%	
	<b>Total</b>	0%	0%	100%	

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	1.0	0.0
Actual Paid Professional	0.0	0.0	34.5	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	512613	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	512613	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

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

**2. Brief description of the target audience**

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

**3. How was eXtension used?**

{No Data Entered}

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2012	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: 2012

Actual: {No Data Entered}

**Patents listed**

{No Data Entered}

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2012	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	Identify BMPS that would decrease foodborne illness
2	Find ways to decrease foodborne illness in meat products

**Outcome #1**

**1. Outcome Measures**

Identify BMPS that would decrease foodborne illness

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	0

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

**Issue (Who cares and Why)**

Improved value for packed tomato fruit due to less decay, fewer safety hazards and better quality. This benefits growers, packers and the consuming public.

**What has been done**

A sanitizing treatment is created that minimizes microbial hazards on the raw fruit prior to fresh processing. This leads to improved shelf-life for the processed product along with improved safety. Shipments of fresh fruits and vegetables are protected from microbial attack thereby leading to a safer product, which has better quality and a longer shelf-life.

**Results**

Impact: Tomato growers have been informed of hazards concerning "wet harvests" (harvesting fruit when crop is wet with rainfall, dew or guttation) as well as harvests of water congested fruit. If market or crop conditions mandate "wet harvests," then special precautions must be taken to avoid decay or wholesomeness problems. "Wet harvests" can be caused by weather events in addition to rainfall. An extension publication (EDIS) detailing such events along with probable photos of affected fruit has been published.

**4. Associated Knowledge Areas**

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

**Outcome #2**

**1. Outcome Measures**

Find ways to decrease foodborne illness in meat products

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	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.

**What has been done**

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.

**Results**

Impact: Sodium metasilicate exhibited concentration and time effects on inactivation of L. monocytogenes. The breakage in membrane integrity was observed by uptake of PI by cells treated with SMS with subsequent flow cytometry. Ultrastructural changes from corresponding transmission electron micrographs further revealed the disruption in the cytoplasmic membrane and changes in the morphology of the cells treated with SMS and NaOH. The results from flow cytometry and transmission electron microscopy studies indicated that after exposure of the cells to SMS and NaOH treatments, the membrane integrity of L. monocytogenes was compromised leading to leakage of intracellular contents and subsequent cell death.

#### 4. Associated Knowledge Areas

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

#### V(H). Planned Program (External Factors)

##### External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
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#### V(I). Planned Program (Evaluation Studies)

##### Evaluation Results

Food-borne illnesses in Florida have the potential of being epidemic without research in best management practices.

##### Key Items of Evaluation

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

Impact: Salmonella populations decreased following inoculation onto new, used, and dirty cartons by 2-3 log units during 24 h drying regardless of storage temperature. In general, the highest transfer rates occurred with wet inoculum, regardless of carton type or temperature storage. The highest TCs was a wet, inoculated tomato stored 7 days at 25C, TC=14.7. Increasing contact time decreased TCs for new cartons, but increased TCs for used and dirty cartons. A greater percentage of Salmonella transferred from tomatoes to cartons than from cartons to tomatoes, regardless of carton type or storage temperature. For example, TC=0.27 from a wet, new carton, immediately touched to a tomato, ; while TC=1.38 from the tomato to the carton under the same conditions. Salmonella transfer between tomatoes and tomato cartons varies between new, used and dirty tomato cartons, indicating cross-contamination risks may increase under some conditions when cartons are dirty or reused. Populations of E. coli O157:H7 and Salmonella decreased under all experimental conditions. At 2C, E. coli O157:H7 populations decreased by 1 and 0.7 log CFU/berry over 24 h on bruised and intact strawberries, respectively. Salmonella populations decreased by 1.3 and 1.5 log CFU/berry over 24 h on bruised and intact strawberries, respectively at 2C. At 15.5C, E. coli O157:H7 and Salmonella showed similar trends over 7 days, where both populations decreased by >2.3 and >2 log CFU/berry on bruised strawberries and >1.9 and >1.6 log CFU/berry on intact strawberries, respectively. Bruising did not significantly affect the fate of E. coli O157:H7 or Salmonella populations on mature strawberries. The current practice of harvesting strawberries at full ripe maturity, whether bruising occurs or not, does not impose any additional food safety risks. Different strains in the same species respond to heat differently. Thermal tolerance was increased significantly ( $P < 0.05$ ) for acid adapted STEC strains, however, acid adaptation did not improve heat resistance for Salmonella spp., and L. monocytogenes strains at most temperatures tested. Salmonella serotypes are less heat resistant, at all temperatures tested, than L. monocytogenes and STEC. STEC, especially strain O111, are the most heat resistant at 56 and 58C; L. monocytogenes strains are the most thermal tolerance at 60C. Combining individual results of all pathogens tested, the formula of  $\log D = 8.2 - 0.14T$  (C) was used to calculate a general process for orange juice at 71.1C. Using this equation, a 5-log reduction of all three pathogens in single strength orange juice requires 5.29 s at 71.1C, with a z-value of 7.1C.



**V(A). Planned Program (Summary)**

**Program # 15**

**1. Name of the Planned Program**

Sustainable natural environment--research

Reporting on this Program

**V(B). Program Knowledge Area(s)**

**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	0%	0%	15%	
111	Conservation and Efficient Use of Water	0%	0%	20%	
112	Watershed Protection and Management	0%	0%	20%	
122	Management and Control of Forest and Range Fires	0%	0%	5%	
123	Management and Sustainability of Forest Resources	0%	0%	10%	
124	Urban Forestry	0%	0%	5%	
133	Pollution Prevention and Mitigation	0%	0%	15%	
135	Aquatic and Terrestrial Wildlife	0%	0%	10%	
	<b>Total</b>	0%	0%	100%	

**V(C). Planned Program (Inputs)**

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

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Actual Paid Professional	0.0	0.0	1.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	104933	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	104933	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**

Finding new ways to solve problems related to the sustainability of natural resources

**2. Brief description of the target audience**

**Brief description of the target audiences**

- Producers
- Commodity associations
- Owners/Operators
- Managers/Supervisors
- Workers/laborers
- Allied industry representatives
- Small farmers
- Government/Regulatory
- County government
- State government
- Federal Government
- Tribal Government
- International governing bodies
- Harvesting/Packing/processing/distribution/transporting
- Retailers
- Importers/Exporters
- Youth and 4-H
- Youth educators
- Extension faculty
- general public

**3. How was eXtension used?**

N/A

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2012	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: 2012

Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
Actual	0	360	360

**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 watershed protection and management
2	Improve the conservation and efficient use of water
3	Increase new technologies to improve water quality
4	Increase Florida wildlife sustainability
5	Identify environmental risks through the collection of applications and modifications of risk analysis methodology data

**Outcome #1**

**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**

<b>Year</b>	<b>Actual</b>
2012	0

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

**Issue (Who cares and Why)**

Contamination of ground and surface water by heavy metals from previously abandoned disposal sites and some currently operating sites have caused much environmental concern. Considerable attention is now being paid to develop cost-effective technologies to remediate contaminated sites with the primary goal of reducing human metal exposure via drinking water, direct ingestion and dust inhalation. This project focuses on soil contamination and remediation as well as land application of waste products.

**What has been done**

Specially, we will determine the environmental impacts of Pb in shooting range soils and develop best management practice to minimize its adverse impacts, examine the mechanisms of arsenic uptake, translocation, distribution and detoxification by Chinese brake fern and apply it in phytoremediating arsenic contaminated soils, evaluate waste materials for beneficial use, including yard trash and ditch cleaning and understand hydrological & biogeochemical control of colloid-facilitated metal transport in soils. Such information is important to protect the environment and facilitation remediation of metal-contaminated sites.

**Results**

Impact: We have accomplished the following for the 3 objectives: 1. Evaluated two best management practices to minimize its adverse impacts, including replacing soil berm with sand berm and recycling of Pb bullets. Based on our results, replacing soil berm with sand berm is effective in reducing Pb weathering. In addition, we have also observed that removing Pb-bullets by physical sieving increased Pb loading into the finer soil fractions. However, sieving Pb shot was effective in removing Pb shot from the berm without increasing Pb concentrations in soil fraction. 2. determine phosphate rock as an effective soil amendment to improve plant biomass and arsenic uptake by arsenic hyperaccumulator Chinese brake fern. Based on 2,5 years of field

experiment, phosphate rock was an effective amendment in increasing plant biomass and arsenic uptake by Chinese brake fern. 3. Evaluate waste materials for beneficial use including humate and coal ash. Humate is produced during mining of mineral Ti. It is currently being piled on site. Our preliminary research shows it can be returned to the soil for land reclamation. We have collected 13 ash samples from various utility companies from Florida and will determine their heavy metal concentrations.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
112	Watershed Protection and Management
135	Aquatic and Terrestrial Wildlife

**Outcome #2**

**1. Outcome Measures**

Improve the conservation and efficient use of water

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	0

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

**Issue (Who cares and Why)**

There is expanding demand for freshwater resources to provide drinking water for the growing population and irrigation water for agriculture, while at the same time preventing pollution and leaving enough water for natural ecosystem functions. These combined pressures define the need for sustainable water resource management. Protection and management of water resources requires the assessment of ecosystem degradation resulting from human activities, and the implementation of measures for the reduction and amelioration of current impacts. Groundwater resources throughout the United States are currently threatened by uncontrolled releases of anthropogenic contaminants such as petroleum hydrocarbons and chlorinated solvents. There are an estimated 300,000 to 400,000 contaminated sites in the U.S. with cleanup costs as high as \$500 billion to \$1 trillion. Surficial aquifers throughout Florida are threatened by chemical spills, pesticide leaching, landfills, and leaking underground storage tanks. Several large ecosystems in Florida are currently severely impacted by excess nutrients, with ongoing implementation of control and mitigation measures for the protection of the St. Johns River, Lake

Okeechobee, Lake Apopka, the Florida Everglades, and Florida Bay.

### **What has been done**

This project aims to 1) predict the performance of the clean-up of aquifer contaminant source zones based on appropriate and efficient characterization, 2) evaluate and enhance the sustainability of natural and constructed wetlands used for pollutant sequestration through the use of advanced mathematical models, and 3) understand and explain the linked hydrologic and biogeochemical mechanisms controlling the Everglades ridge and slough ecosystem. These objectives will be met through field and laboratory experimentation as well as mathematical modeling.

### **Results**

Impact: Our work on the first goal is funded by SERDP which is sponsored by the US DOE, DOD and EPA. Working closely with the Department of Defense we are extending our management interpretations to contaminated field sites managed by the US Department of Defense. In 2011 we concluded a field experiment at the US Navy base in Alameda, CA. The second objective is funded by the Florida Department of Agriculture and Consumer Services with an emphasis on limiting the impact that agricultural producers are having on water quality in the Lake Okeechobee basin. We work closely with the FDACS scientists and staff who are engaged in on-the-ground implementation of our findings. Work on the third goal is supported by the South Florida Water Management District. We share our findings at the bi-annual Greater Everglades Ecosystem Research Conference, which contributes to both our own improved understanding but also to that of the greater scientific community. We are working towards a synthesized theory of how the ridge and slough landscape was formed and maintained. Once the governing mechanisms are clearly understood, those mechanisms can be emphasized for Everglades restoration. We have made great progress in the synthesis of these ideas in 2011, and we anticipate sharing them with the Greater Everglades research and management community at the international INTECOL conference on this topic in Orlando in June 2012. We have also extended our network of collaborators to include scientists in the mid-western United States (U. Iowa, Purdue U.) and Sweden. We are chairing a session at the INTECOL meeting that will bring in additional collaborators from North Carolina and Canada. We plan to expand our work on catchment discharge with the aim of guiding watershed management policy.

## **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management

## **Outcome #3**

### **1. Outcome Measures**

Increase new technologies to improve water quality

### **2. Associated Institution Types**

- 1862 Research

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

Year	Actual
2012	0

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

The Clean Water Act (CWA) is the cornerstone of surface water quality protection in the United States. (The Act does not deal directly with ground water or water quantity issues.) The statute employs a variety of regulatory and nonregulatory tools to sharply reduce direct pollutant discharges into waterways, finance municipal wastewater treatment facilities, and manage polluted runoff. These tools are employed to achieve the broader goal of restoring and maintaining the chemical, physical, and biological integrity of the nation's waters so that they can support "the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water." For many years following the passage of CWA in 1972, EPA, states, and Indian tribes focused mainly on the chemical aspects of the "integrity" goal. During the last decade, however, more attention has been given to physical and biological integrity. Also, in the early decades of the Act's implementation, efforts focused on regulating discharges from traditional "point source" facilities, such as municipal sewage plants and industrial facilities, with little attention paid to runoff from streets, construction sites, farms, and other "wet-weather" sources. Starting in the late 1980s, efforts to address polluted runoff have increased significantly. For "nonpoint" runoff, voluntary programs, including cost-sharing with landowners are the key tools. For "wet weather point sources" like urban storm sewer systems and construction sites, a regulatory approach is being employed. Evolution of CWA programs over the last decade has also included something of a shift from a program-by-program, source-by-source, pollutant-by-pollutant approach to more holistic watershed-based strategies. Under the watershed approach equal emphasis is placed on protecting healthy waters and restoring impaired ones. A full array of issues are addressed, not just those subject to CWA regulatory authority. Involvement of stakeholder groups in the development and implementation of strategies for achieving and maintaining state water quality and other environmental goals is another hallmark of this approach (EPA, 2003). The National Section 303(d) fact sheet (EPA, 2006) showed a total number of impaired waters reported as 38,698. The leading causes of these impairment were pathogens (13.37%), Mercury (13.30%), Sediment (10.61%), Metals (other than Mercury 9.92%), Nutrients (8.77%), Oxygen Depletion (7.01%), PH (5.41%), Cause Unknown Biological Integrity (4.35), and Temperature (4.31%) (EPA, 2006).

#### What has been done

Because of the immensity of the stream miles, lakes and estuaries involved and the jurisdictional differences within the impaired watersheds, tools are needed to better understand the causes and potential processes that can be used to restore and protect these water bodies. Combining remote sensing, monitoring, geographical information systems, and numerical simulation has been shown to be an effective and economic solution to these issues (R. Munoz-Carpena et al.,



## Results

Impact: The methods and tools developed in this reporting period have been presented to different stakeholders through a variety of methods to ensure the impact of the results (workshops, public web-based distribution of model and analysis tools, publications, reports and presentations). During the last reporting period I chaired the S-1042 Regional Project and organized a well-attended annual project meeting (25 project members from 15 institutions) at the University of Florida in November 2012. The meeting allowed sharing of results and ideas for this Project and also to initiate the development of a new Regional project this year. Among specific impacts of our work during the past reporting period, VFSSMOD (<http://abe.ufl.edu/carpena/vfssmod>) has been accepted as a reference tool for analysis and design of densely vegetated areas (grass and others) placed between disturbed lands (i.e. in agro-forestry, mining, road, construction, and urban settings) and a receiving water body. Vegetative filter strips are commonly used as a BMP in TMDL implementation plans to trap surface runoff contaminants like nutrients, sediment, and pesticides. The model has received renewed interest in the context of pesticide registration and licensing both in the U.S. and Europe. For registration of pesticides that do not pass higher-tier environmental exposure assessments, grass dense vegetation areas can be successful in limiting surface water pollution from pesticide treated areas (agricultural, roads, train tracks, urban landscape, etc.). The research has shown that the proper implementation of this practice requires consideration of complex interactions between physical (hydrology and sedimentology), chemical (pesticide chemistry) and human (land use) processes. In Europe the model is now part of SWAN 3.0 (<http://www.york.ac.uk/environment/pesticides/#tab-2>), the computer tool used by EU agencies and industry for long-term pesticide environmental assessments in the regulatory process. The application of modeling evaluation tools that our team pioneered in hydrology and water quality (global sensitivity and uncertainty analysis) is now becoming standard in many model applications. Our FITEVAL (<http://abe.ufl.edu/carpena/software/fiteval.shtml>) tool is the basis for collaboration with other key members of the modeling community to add procedures for model evaluation with uncertainties in the measured data and model outputs. We expect the modeling community will accept this tool soon as a standard

## 4. Associated Knowledge Areas

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

## Outcome #4

### 1. Outcome Measures

Increase Florida wildlife sustainability

### 2. Associated Institution Types

- 1862 Research

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	0

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

**Issue (Who cares and Why)**

By 1990s, the endangered Florida panther ? a flagship species and one of the last remaining symbols of wilderness in Florida - was in serious trouble. There were fewer than 30 panthers remaining in the wild. The population suffered from several biomedical and morphological abnormalities, including low genetic diversity, heart defects, reproductive dysfunctions and kinked tails. Many of these problems were thought to be indicative of inbreeding, and conservation biologists recommended genetic restoration. This recommendation was controversial but was ultimately implemented after careful planning.

**What has been done**

Eight female Texas pumas were released into Florida panther habitat in southern Florida in 1995. The Texas puma females bred with Florida panther males. Subsequently, genetic diversity increased, frequency of biomedical and morphological abnormalities decreased, and the panther population size increased substantially reaching 100-120 panthers by 2010. This raised an important question: was the observed increase in panther numbers due to genetic restoration? A recent study led by University of Florida ecologists and the Florida Fish and Wildlife Conservation Commission tackled this difficult question.

**Results**

Using long-term field and genetic data and sophisticated statistical and mathematical models, researchers show that the improved survival of hybrid panthers was likely the main cause of observed population increase. They report that, without genetic restoration, the Florida panther population would have continued to decline and faced a substantial risk of extinction. These results provide strong evidence that genetic restoration can help small, isolated populations that suffer from inbreeding-related problems.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife

## **Outcome #5**

### **1. Outcome Measures**

Identify environmental risks through the collection of applications and modifications of risk analysis methodology data

### **2. Associated Institution Types**

- 1862 Research

### **3a. Outcome Type:**

Change in Knowledge Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	0

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

#### **Issue (Who cares and Why)**

Many non-native species have invaded Florida's aquatic habitats, including freshwater fishes (e.g., tilapia, walking catfish, and Asian swamp eels), marine fishes (e.g., lionfish), snails (e.g., channeled apple snail), and bivalves (e.g., Asian clam, green mussel). Non-native species may be undesirable additions to Florida's fauna due to competition with native species for food or other resources, predation on native species, alterations to habitat, introduction of novel pathogens, and invasion of parks and preserves. Nevertheless, non-native aquatic species may provide benefits to the people and economy of Florida. For example, there are several important non-native sport fish in the state (e.g., butterfly peacock bass, hybrid striped bass). Other species are grown in aquaculture for food (e.g., tilapia) or ornamentals (i.e., aquarium or water garden species). Indeed, Florida aquaculture is dominated by the production of non-native species and had a farm-gate value of almost US\$100 million in 2003. The relationships and effects of non-native species for aquatic systems and humans may be complex and multi-directional. For example, sport fishing in Florida is valued in excess of US\$5.3 billion. Non-native species potentially affect recreational fishing by negative interactions with native fish, destruction of aquatic macrophytes, or reduced aesthetics; however, recreational fisheries are commonly enhanced by the introduction of non-native sport and prey fish as well as by the use of non-native bait. Despite the threats posed by non-native species and their importance to the people and economy of Florida, there is relatively little known about Florida's non-native aquatic species, particularly their ecological effects. Because of a general lack of information, predicting the successful invasion and subsequent effects is difficult. Given uncertainty and poor predictive ability it is extremely difficult for resource managers and regulators to carry out their mandates in a science-based manner.

#### **What has been done**

Information generated under this research program will provide stakeholders with information to facilitate better decision-making. The overall objective of this project is to develop data on the

ecology, life history, and effects of non-native aquatic species in Florida to facilitate science-based management by natural resource agencies. Specific objectives include: 1) Document the species identity, range, and spread of introduced aquatic species in Florida; 2) Document the life history of non-native aquatic species in Florida; 3) Investigate the ecological interactions between non-native aquatic species, native species, and their environment; 4) Determine the effects of non-native aquatic species on native species, aquatic systems, and human activities (e.g., aquaculture, recreational fishing) in Florida; 5) Risk analysis of aquatic species that have been or may be introduced into Florida, including testing and development of methodology; 6) Development of eradication and control methods for non-native aquatic species. Studies will incorporate a combination of field sampling with laboratory and field experimentation.

### Results

Impact: Information developed in this project included applications and modifications of risk analysis methodology, data on abiotic factors limiting the spread of non-native fishes, and data concerning the ability of native predators to resist the invasion of new species. The Fish Invasiveness Scoring Kit (FISK) was updated and modified to FISK v2 to better estimate risks of non-native freshwater fishes in warmer climate zones and to improve the software tool user interface. FISK v2 has been used in Europe, North America, Asia, and Australia to assess non-native fish risks, including the risks associated with transgenic fluorescent ornamental fishes. Data on physiological tolerances have shown that some non-native freshwater fish species are capable of surviving at elevated salinities, facilitating spread between river basins through use of estuarine habitat. The results of this project support the hypothesis that predation is a resistance to the invasion of small-bodied, non-native fishes, that habitat influences the predator-prey dynamic, that prey behavior has a large influence on vulnerability to predators, and that multiple predators may interfere with or facilitate one another. Information developed in this project has been used as a basis of regulatory and management changes in Florida and globally. New regulations for barramundi (*Lates calcarifer*) aquaculture were implemented for Florida based on risk analysis work conducted in this project. Additional risk analysis work on blue tilapia (*Oreochromis aureus*) has led to reevaluation of existing regulations and additional research investigating the environmental performance of tilapia hybrids. Global standards for sustainable use of non-native tilapia in aquaculture were developed and disseminated. The information has made target audiences more aware of risks associated with non-native fishes and management options to mitigate risk

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife

## **V(H). Planned Program (External Factors)**

### **External factors which affected outcomes**

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

### **Brief Explanation**

Florida is still being heavily impacted by the economic situation. Public higher education in Florida has lost more than 50% of state funding and research has been impacted by other losses caused indirectly by the economic down turn including a reduction of funding opportunities available at the national level. In some cases faculty who leave or retire are not being replaced because of economic issues. Changes in state, county and federal appropriations can also affect the outcomes related to the Florida research land-grant mission. Because of limited resources in Florida and continuing devolution research projects can always be affected by changing public and governmental priorities policies, regulations and laws.

Natural and national disasters can also affect research field studies and multistate research. Natural disasters such as tropical storms and hurricanes are common annual occurrences in this state and often cause severe damage to plants and the environment in which active research is taking place.. Severe weather conditions such as droughts frequently led to large-scale fires which can also impact studies. In 2012 we were heavily impacted by severe storms and fires. We also had other weather extremes such as floods leading to large scale damage especially along the coastal regions and the panhandle of the state. All of these can have a direct and indirect impact on research.

## **V(I). Planned Program (Evaluation Studies)**

### **Evaluation Results**

The human population is continuing to grow, and with this growth natural landscapes are becoming less common, smaller in size, and more isolated from other remaining habitats, primarily through an intensification of agriculture and urban land uses. Human-induced pressures within natural habitats also remain common, including increased human recreation and activity, increased numbers and diversity of invasive species, and the degradation of habitats. Understanding how ongoing anthropogenic change influences wildlife populations and biodiversity is crucial for both short-term and long-term management and conservation plans.

### **Key Items of Evaluation**

Approximately 15% of the 10 million acres of public conservation lands in Florida

have been disrupted by invasive nonindigenous plants, costing the state more than \$29 million annually for control and management practices (Don Schmitz, personal communication, 2005). The majority of plants considered invasive today were originally introduced as ornamentals and there is often a lag time between when a species is determined to be invasive and when it is no longer produced commercially. An alarming 60% of plants on The Florida Nursery Growers and Landscape Association's (FNGLA) voluntary 'do not sell' list (compiled in 2001) were still commercially available in 2004 from Florida nurseries (Caton, 2005). About 27% of FLEPPC Category I and II species are still commercially available in Florida, with some having more than 100 known cultivars that could potentially impact our natural areas. Some cultivars have the potential to cross with closely related native species. Controlled crossing can definitively tell us if they are a potential threat to our native flora. Research is critical to provide scientific evidence of the potential negative impacts invasives may have with regards to crossing with related native species, seedling trueness to type, invasive potential, and site specificity. We propose to evaluate Category I and II ornamental species that are currently available in the nursery trade. Field trials will be conducted in north and south FL and subsequent seeds will be subjected to viability and germination tests. Three of the most popular ornamental species (Mexican Petunia, Lantana, and Nandina) will be subjected to breeding selection for genetic sterilization. Potential for hybridization between native and invasive genera will be assessed. This information will be directly beneficial to our scientific community, nursery industry, and general gardening community.

Impact: In summary, the substantial economic (Pimentel et al., 2005) and ecological (Simberloff, 1997) costs of invasive species management and removal warrant aggressive early detection and prevention programs. This research illustrates the importance of evaluating cultivars for invasiveness in more than one region. Several cultivars (already existing in the industry) of invasive plants have been approved for recommendation by the University of Florida Intraspecific Taxon Protocol. These include *Nandina domestica* 'Firepower', *Nandina domestica* 'Harbour Dwarf', and *Ruellia tweediana* 'Purple Showers'. Extensive breeding efforts to produce novel and safe cultivars are currently underway with statewide landscape trialing. Availability of non-invasive cultivars will provide the horticulture industry with a ready substitute to invasive species for continued use of these popular plants.

**V(A). Planned Program (Summary)**

**Program # 16**

**1. Name of the Planned Program**

Develop responsible and productive youth--research

Reporting on this Program

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
806	Youth Development	0%	0%	100%	
	<b>Total</b>	0%	0%	100%	

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Actual Paid Professional	0.0	0.0	0.6	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	8863	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	8863	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

Research into methods of developing more responsible and productive youth. Understanding the needs of youth. Methods to improve learning.

**2. Brief description of the target audience**

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

- Adult and youth volunteers in the 4-H program
- Florida families with youth enrolled in the 4-H program between the ages of 5 and 18
- Parents and grandparents of youth ages 5-18 in the 4-H program
- Teens (14-18) in the 4-H program
- Adults interested in engaging in positive youth development

**3. How was eXtension used?**

N/A

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	0	0	0	0

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

**Patent Applications Submitted**

Year: 2012  
 Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
<b>Actual</b>	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	Increase knowledge that will added to a better understanding of the needs of youth development.
2	Increase knowledge in understanding the systematic approach to volunteer development and sustainability for youth programs.

## **Outcome #1**

### **1. Outcome Measures**

Increase knowledge that will added to a better understanding of the needs of youth development.

### **2. Associated Institution Types**

- 1862 Research

### **3a. Outcome Type:**

Change in Knowledge Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	0

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

#### **Issue (Who cares and Why)**

In a recent survey among Florida youth in grades 6 through 12, 16.4% reported heavy drinking in the last 30 days, 15.2% reported the use of illicit drugs in the past 30 days, and 12.4% reported that, in the past year, they have attacked someone with the intent to harm. As a result, 5.6% of Florida youth reported being arrested by police in the last year. Although the monetary costs to society are uncertain, most recent estimates suggest that a typical juvenile career in crime costs between \$80,000 to \$325,000 per juvenile. In fact, saving one adolescent from a criminal career could save society between \$1.7 and \$2.3 million.

#### **What has been done**

The goal of this research is to better understand the role of family relationships in supporting healthy psychosocial, emotional, and spiritual development and reducing risk-taking behaviors among youth and emerging adults in the state of Florida (and across the U.S.). This will be accomplished through a series of studies that are designed to more specifically examine the intergenerational (family relationships) and developmental (individual) characteristics that influence risk taking behavior. Additionally, the studies will examine the characteristics of prevention programs that promote both family and individual development. Given the costs to society of adolescent risk behaviors, it is important for researchers and practitioners in the state of Florida to better understand the causes of risk taking behavior if something is to be done to reduce the harmful consequences. The benefit of this research to the state of Florida will be two-fold. First, research can both inform and improve existing community-based efforts to prevent harmful consequences. Second, research can uncover those strategies and practices that are most likely to succeed in preventing or reducing behavior that results in harmful consequences.

#### **Results**

Impact: Research activities that focused on Objective 1 have continued to explore correlates of

behavioral and mental health outcomes among emerging adults. In one study, my colleagues and I explored the association between personal identity and moral identity and how each would predict college student mental health, risky behaviors, and psychological well-being. Results showed that emerging adults with a stronger sense of personal identity and moral identity were lower on symptoms of anxiety and depression and levels of hazardous alcohol use, and higher on self-esteem and meaning-in-life. Furthermore, the relationship between identity and health outcomes was stronger when both personal identity and moral identity were high. The results suggest that although personal identity and moral identity were correlated with one another, they each play a unique role in predicting mental and behavioral health outcomes. Thus, health outcomes might be improved through activities that strengthen self and moral identity. In another study, first and second generation immigrant college students were asked to complete a questionnaire to ascertain the extent to which acculturation and self-identity were related. The results showed that across ethnic groups, college students who had engaged in a period of personal identity exploration reported the greatest endorsement of both heritage and American cultural practices, values, and identifications. On the other hand, college students who had not engaged in a period of personal identity exploration reported the lowest endorsement of both heritage and American cultural practices, values, and identifications. The results suggest that biculturalism - an agentic approach to exploring both heritage and American cultural practices, values, and identifications - is most likely to occur among individuals who have purposefully explored personal identity alternatives. This task would be doubly important for immigrants who must define themselves within two cultural worlds. Research activities for Objective 2 have focused on the preliminary analysis of evaluation data from the Grandfamily Resilience and Sustainability (GRandS) project funded by NIFA Children, Youth and Families At-Risk Sustainable Community Grant. Findings suggest that as a result of participation in GRandS programmatic activities, grandparents had a better understanding of positive discipline and positive parenting practices. Additionally, grandparents reported an increase in family strengths and better communication. They were more willing to use positive communication with family members, and they had a better understanding of the importance of listening and rephrasing during communication. Finally, grandparents reported that they have become more aware of mental health, legal aid services, and support groups in the community.

#### **4. Associated Knowledge Areas**

<b>KA Code</b>	<b>Knowledge Area</b>
806	Youth Development

#### **Outcome #2**

##### **1. Outcome Measures**

Increase knowledge in understanding the systematic approach to volunteer development and sustainability for youth programs.

##### **2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	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.

**What has been done**

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.

### Results

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

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

#### V(H). Planned Program (External Factors)

##### External factors which affected outcomes

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

##### Brief Explanation

Florida is still being heavily impacted by the economic situation. Public higher education in Florida has lost more than 50% of state funding and research has been impacted by other losses caused indirectly by the economic down turn including a reduction of funding opportunities available at the national level. In some cases faculty who leave or retire are not being replaced because of economic issues. Changes in state, county and federal appropriations can also affect the outcomes related to the Florida research land-grant mission. Because of limited resources in Florida and continuing devolution research projects can always be affected by changing public and governmental priorities

policies, regulations and laws.

Natural and national disasters can also affect research field studies and multistate research. Natural disasters such as tropical storms and hurricanes are common annual occurrences in this state and often cause severe damage to plants and the environment in which active research is taking place.. Severe weather conditions such as droughts frequently led to large-scale fires which can also impact studies. In 2012 we were heavily impacted by severe storms and fires. We also had other weather extremes such as floods leading to large scale damage especially along the coastal regions and the panhandle of the state. All of these can have a direct and indirect impact on research.

## **V(I). Planned Program (Evaluation Studies)**

### **Evaluation Results**

Developing and evaluating adult and youth volunteers is critical to strong youth support systems with in 4-H, FFA and other programs in which the land-grant university is involved. Although the research is limited it has great importance and will impact not only Florida youth but the findings can be used with youth across the United States and globally.

### **Key Items of Evaluation**

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.

**V(A). Planned Program (Summary)**

**Program # 17**

**1. Name of the Planned Program**

Climate Change

- Reporting on this Program  
Reason for not reporting  
not required. Optional

**V(B). Program Knowledge Area(s)**

- 1. Program Knowledge Areas and Percentage

**V(C). Planned Program (Inputs)**

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

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	4.0	1.0	0.0	0.0
Actual Paid Professional	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual Volunteer	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

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

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

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

- 1. In service training workshops will be developed using research-based information
- 2. A centralized website will be implemented (as a component of the Florida Climate Institute's website) containing:



- Resource library of internally vetted articles, government documents, lectures, NGO reports and links to websites
- List and links to existing UF/FSU research programs related to climate variability and change
- In-service training presentations
- Extension curriculum materials (PowerPoint presentations, EDIS publications, other resources)
- Funding opportunities, especially via RFPs which require an Extension component

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

**2. Brief description of the target audience**

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

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

**3. How was eXtension used?**

{No Data Entered}

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	0	0	0	0

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

**Patent Applications Submitted**

Year: 2012

Actual: {No Data Entered}

**Patents listed**

{No Data Entered}

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

<b>2012</b>	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Actual</b>	10	0	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

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

**Outcome #1**

**1. Outcome Measures**

Change in knowledge related to climate variability and climate change

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	0

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

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

**What has been done**  
{No Data Entered}

**Results**  
{No Data Entered}

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
{No Data}	null

**Outcome #2**

**1. Outcome Measures**

Change in behavior related to climate variability and climate change

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	0

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

**Issue (Who cares and Why)**

{No Data Entered}

**What has been done**

{No Data Entered}

**Results**

{No Data Entered}

**4. Associated Knowledge Areas**

**KA Code    Knowledge Area**

{No Data}    null

**Outcome #3**

**1. Outcome Measures**

Change in condition related to climate variability and climate change

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

Year	Actual
2012	0

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

{No Data Entered}

#### What has been done

{No Data Entered}

#### Results

{No Data Entered}

### 4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

### V(H). Planned Program (External Factors)

#### External factors which affected outcomes

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

#### Brief Explanation

{No Data Entered}

### V(I). Planned Program (Evaluation Studies)

#### Evaluation Results

{No Data Entered}

#### Key Items of Evaluation

2012 University of Florida Research and Extension and Florida A&M University Extension Combined Annual Report of  
Accomplishments and Results  
{No Data Entered}

**V(A). Planned Program (Summary)**

**Program # 18**

**1. Name of the Planned Program**

Sustainable Energy

- Reporting on this Program  
Reason for not reporting  
optional not required

**V(B). Program Knowledge Area(s)**

- 1. Program Knowledge Areas and Percentage

**V(C). Planned Program (Inputs)**

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

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	4.0	1.0	0.0	0.0
Actual Paid Professional	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual Volunteer	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

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

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

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

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

**2. Brief description of the target audience**



General public

Agricultural producers/growers

Business

Community government

### 3. How was eXtension used?

{No Data Entered}

## V(E). Planned Program (Outputs)

### 1. Standard output measures

2012	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: 2012

Actual: {No Data Entered}

#### Patents listed

{No Data Entered}

### 3. Publications (Standard General Output Measure)

#### Number of Peer Reviewed Publications

2012	Extension	Research	Total
Actual	5	0	0

## V(F). State Defined Outputs

### Output Target

#### Output #1

##### Output Measure

- {No Data Entered}

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

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

### **Outcome #1**

#### **1. Outcome Measures**

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

#### **2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

#### **3a. Outcome Type:**

Change in Knowledge Outcome Measure

#### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	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**

<b>KA Code</b>	<b>Knowledge Area</b>
{No Data}	null

### **Outcome #2**

#### **1. Outcome Measures**

Changes in behavior related to 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	Actual
2012	0

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

**Issue (Who cares and Why)**

{No Data Entered}

**What has been done**

{No Data Entered}

**Results**

{No Data Entered}

**4. Associated Knowledge Areas**

**KA Code    Knowledge Area**

{No Data}    null

**Outcome #3**

**1. Outcome Measures**

Change in Conditions related to 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**

<b>Year</b>	<b>Actual</b>
2012	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**

<b>KA Code</b>	<b>Knowledge Area</b>
{No Data}	null

**V(H). Planned Program (External Factors)**

**External factors which affected outcomes**

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

**Brief Explanation**

{No Data Entered}

**V(I). Planned Program (Evaluation Studies)**

**Evaluation Results**

{No Data Entered}

**Key Items of Evaluation**

{No Data Entered}

**V(A). Planned Program (Summary)**

**Program # 19**

**1. Name of the Planned Program**

Childhood Obesity

Reporting on this Program

Reason for not reporting

This will be reporting in another category once our strategic plan is completed

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

**V(C). Planned Program (Inputs)**

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

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	25.0	2.0	0.0	0.0
Actual Paid Professional	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual Volunteer	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

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

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

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

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

Lifestyle intervention programs to address Childhood Obesity

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

**2. Brief description of the target audience**

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

**3. How was eXtension used?**

{No Data Entered}

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2012	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: 2012

Actual: {No Data Entered}

**Patents listed**

{No Data Entered}

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
Actual	5	0	0

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}





**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

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

**Outcome #1**

**1. Outcome Measures**

Changes in knowledge that will reduce childhood obesity

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	0

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

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

**What has been done**  
{No Data Entered}

**Results**  
{No Data Entered}

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
{No Data}	null

**Outcome #2**

**1. Outcome Measures**

Changes in behavior related to nutrition that will reduce childhood obesity

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	0

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

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

**What has been done**  
{No Data Entered}

**Results**  
{No Data Entered}

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
{No Data}	null

**Outcome #3**

**1. Outcome Measures**

Changes in physical activity that will lead to reduced childhood obesity

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	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**

<b>KA Code</b>	<b>Knowledge Area</b>
{No Data}	null

**Outcome #4**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	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**

<b>KA Code</b>	<b>Knowledge Area</b>
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{No Data}	null
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**V(H). Planned Program (External Factors)**

**External factors which affected outcomes**

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

**Brief Explanation**

{No Data Entered}

**V(I). Planned Program (Evaluation Studies)**

**Evaluation Results**

{No Data Entered}

**Key Items of Evaluation**

{No Data Entered}

**V(A). Planned Program (Summary)**

**Program # 20**

**1. Name of the Planned Program**

Food Safety

Reporting on this Program

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	0%	0%	50%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	0%	0%	30%	
721	Insects and Other Pests Affecting Humans	0%	0%	10%	
722	Zoonotic Diseases and Parasites Affecting Humans	0%	0%	10%	
	<b>Total</b>	0%	0%	100%	

**V(C). Planned Program (Inputs)**

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890
Plan	25.0	3.0	0.0	0.0
Actual Paid Professional	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual Volunteer	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

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

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

**V(D). Planned Program (Activity)**

**1. Brief description of the Activity**

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

- On-site training for produce workers using existing materials on CD with appropriate activities or other adult learning methods; In-service training for faculty; County training with activities, adult learning methods for consumers; Distribution of current EDIS pubs, develop others as needed.
- Use media outreach to increase awareness of fresh produce food safety e.g. print and broadcast media, Family Album Radio, the Solutions for Your Life and county Web sites.

Key educational methods: Revitalizing home food preservation

- Continue training of county faculty based on recent research on home food preservation in collaboration with UGA National Center for Home food preservation, Dr. Elizabeth Andress.
- Seek grant funding and/or support for canning supplies for training
- Facilitate county faculty mentoring program to support for 4-H and adult community training
- Prepare and review publications as needed.

Key educational methods: Continuing food safety education for food handlers

- Serv Safe® Training and Certification for food service managers/operators
- Food service workers/food handlers training (SafeStaff ®or equivalent) on site or elsewhere

- Use media to raise awareness and classes/programs to increase knowledge and competency of consumers and volunteers on safe food handling
- Face-to-face training: Food safety and quality update for FCS county faculty; training by state government officials on food businesses regulation; other emerging programs and issues.

**2. Brief description of the target audience**

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

Potential partners: Produce vendors; canning centers; regulators Target audiences: County faculty; adults (consumers/ volunteers); youth (4-Hers)

- 3) Continuing food safety education of food handlers Target audiences: Food service operators: food handlers (adults; youth); consumers; volunteers, and county faculty

**3. How was eXtension used?**

{No Data Entered}

**V(E). Planned Program (Outputs)**

**1. Standard output measures**

2012	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
<b>Actual</b>	0	0	0	0

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

**Patent Applications Submitted**

Year: 2012  
 Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

2012	Extension	Research	Total
<b>Actual</b>	15	1	1

**V(F). State Defined Outputs**

**Output Target**



**Output #1**

**Output Measure**

- {No Data Entered}

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

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

## **Outcome #1**

### **1. Outcome Measures**

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

### **2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

### **3a. Outcome Type:**

Change in Knowledge Outcome Measure

### **3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	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**

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

**Outcome #2**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	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
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

**Outcome #3**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	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**

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

**V(H). Planned Program (External Factors)**

**External factors which affected outcomes**

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

**Brief Explanation**

{No Data Entered}

**V(I). Planned Program (Evaluation Studies)**

**Evaluation Results**

{No Data Entered}

**Key Items of Evaluation**

{No Data Entered}