# 2009 University of Florida Research and Extension and Florida A&M University Extension Combined Annual Report of Accomplishments and Results

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## I. Report Overview

### 1. Executive Summary

The year 2009 was another challenging year for the Florida Land grant universities. The spiraling economic situation continues to impact available revenue and this in turn impacts faculty and staff positions, projects and programs. Stress levels are higher as constituents continue to lose jobs, homes and lifestyles to which they were accustomed. They are more desperate for solutions and assistance to find their way back to a more normal existence. Florida Cooperative Extension (UF and FAMU) and UF Research are continuing to look for and find solutions to solve problems in areas that relate to the land-grant mission. Although working with a more limited budget during 2009 both UF and FAMU have been successful in reaching their missions to serve the needs of Florida residents.

UF and FAMU Extension faculty continue to work closely together in many of the goal and focus areas that have been identified through grassroots interaction. Although the Florida landgrant system was already looking at issues identified on the national level within these goal and focus areas, Florida has more clearly defined the five NIFA programs (global hunger and security, childhood obesity, sustainable energy, climate change and food safety) as individual priorities for the coming years.

Presently there are 431.2 FTEs involved in UF Extension and 28 FTEs identified in FAMU Extension working in 67 counties in a state with a total population now exceeding 18 million. In 2008 it was projected that 26.9% of the total Florida land area was rural farmland. Of this landmass, 48.2% is irrigated. Pastureland constitutes 19.4% of the total. Many agricultural industries are found in or near urban areas such as those related to ornamental horticulture. Greenhouses and nurseries provide 25.3% of the total state farm receipts and are 11.3% of the total US value in this commodity area.

Over 4.4% of farms have income in excess of $500,000 but 65.4% of farms have less than $10,000 in profits. This is consistent with the increasing small farm trend seen over the past 12 years in Florida. In 2007 there were 40,000 farms in the state. In 2009 this had increased to 47,000. Individual and family owned farms total 83.8% of all farms in the state.

The top five major agricultural exports in Florida in 2007 (http://www.ers.usda.gov/Statefacts/FL.htm) were greenhouse/nursery; oranges; tomatoes; dairy products; and cattle and calves. Citrus alone contributes $9 billion annually to the state economy. The 2007-08 value of production for the seven major vegetable crops along with potatoes, berries and watermelons totaled almost $2 billion. There continues to be tension as the state grows and expands with both births and people moving into the state and increasing the urban infringement into what had been traditionally rural farmland. There are other challenges to the industry that extension is trying to improve through science-based educational programs and demonstrating the most effective production practices including improved nutrient and irrigation management to conserve water and minimize nutrient leaching; improvement in pest management, and finding ways to reduce production costs while increasing and expanding world-wide markets and profits.

Tourism for Florida means 76.8 million visitors per year that has an economic impact statewide of $57 billion. This means that protecting the tropical environment and wildlife habitats both for and from the human population is critical. Also of paramount importance is keeping food safe from farm to table. All of these critical areas are improved because of research based programs developed and implemented by Florida 1862 and 1890 faculty.

Over the past year Extension at both UF and FAMU have been looking at innovative ideas in presenting programs in critical areas needed both in the urban and rural areas. They are looking for ways to reduce educational costs as the budget becomes tighter while still providing quality programs. This has led to the increased use of advanced communication technologies such as Elluminate, polycom and SharePoint. For example, to save on travel some state specialists make presentations via polycom or their presentations are taped and presented via wide screen TV and then Q& A sessions follow via conference calls. These same methods are being used for some multistate programs by having specialists teach via polycom from a different state. Websites that provide videos and other easy to view information have also been increased.

Regardless of the economic conditions in 2009, County educational programs developed and implemented by county and state faculty continue to be strong. The University of Florida continues to develop programs under the seven Extension goals: and are highlighting many more programs related to profitability and sustainability, improved quality of life, and protecting and improving natural resources such as those related to water quality and quantity. FAMU has continued to highlight important programs in areas related to herd health, youth, economic development and sustainable organizations and communities. Both FAMU and UF Extension have programs in nutrition that are aimed towards increasing health and reducing obesity especially childhood obesity.

Total direct contacts through UF/FAMU Extension group learning experiences statewide in 2008 were 3,376,836. These numbers increased in 2009 to 4,837,302. The total of individual field and office consultations doubled from 210,650 in 2008 to 413,119 in 2009. Over 448,137 received assistance by phone consultations and email consultations increased to 757,434 in 2009. Indirect contacts through web visits to county and state faculty websites included 757,434 hits last year. Over 244,586

youth were reached in 306,025 individual 4-H projects. Projects included such interests as citizenship and civic education, plants and animals, nutrition, science and technology and healthy lifestyles. Over 13,364 adult volunteers and 1,832 youth volunteers helped to educate these youth statewide.

In all, almost 5 million Florida Extension clientele of all ages were reached through direct contacts in Florida during 2009. Of the 790,152 formally surveyed who attended group learning opportunities, 397,693 showed a change in knowledge following these Extension trainings; 283,344 said there were positive behavior changes and 109,115 made changes that impacted their communities socially, economically or environmentally. Even with the severe economic impacts affecting Florida in 2009 all of these numbers have increased over 2008. An annual customer satisfaction survey is done with a random sample of the total number of clientele in a minimum of 12 counties each year and for 2009 information was reported as being accurate and up to date 96% of the time; delivered in a timely manner 94% of the time. Relevant 93% of the time. People used the information 80% of the time and it solved their problems in at least 86% of the time.

Another 24,381,118 represents the number of successful requests recorded in the EDIS online publications (articles located in EDIS written by both UF and FAMU faculty) to read or print documents written by Florida Extension specialists during 2009. The official Extension site at http://solutionsforyourlife.com has also continued to increase in usage. In 2009 there were 886,610 sessions meaning that clientele spent extended time within the website looking at multiple pages. The daily average of sessions was 2,422. Both EDIS and Solutions for Your Life (SFYL) have become critical tools to supplement the educational programs as well as improving the Extension brand for clientele not only in Florida but world-wide. They also allow for 24/7 accessibility of information freeing up much needed time for county and state faculty to deal with more critical problems that require one-on-one assistance.

The goal to increase the amount of integrated and multistate activities continued to be important. In 2009, University of Florida Extension exceeded both the multistate and integrated 25% requirements. Faculty developed and implemented many programs and outputs that met the integrated and multistate qualifications from field days planned across stateliness to websites developed on regional or national levels. Florida Extension also carried out a formal merit review that included all program areas. Copies are kept in the Program Development and Evaluation Center (PDEC). Grassroots stake holders are also contacted annually through advisory and focus teams in order to update the long-range plan during the years between formal grass-roots listening sessions. Florida Extension has met all requirements for stakeholder input and merit review process.

University of Florida IFAS research has also been proactive in finding ways to offset problems being generated by the economic crisis. There are presently 108.6 SYs involved in Florida research. Many Florida faculty have joint appointments, and the research appointments can range from 5% to 100%. Research administration has provided formal grant training for all research faculty interested in writing grants. There has been an increase in grant allocations between 2008 to 2009 of 13.8%.

Florida is fairly unique in their temperature and soil types in the U.S. This means that a lot of research related to the unique conditions must be conducted in Florida. Florida also does research in many areas that are not unique to the state but are cutting edge and often multistate in nature. Florida has a very prominent position in the U.S. Agricultural Economy. Studies related to climate change is extremely important as are projects involving bio-energy and other forms of sustainable energy.

Studies related to fruits and vegetables are also critical in the unique Florida environment. Florida ranks first in the U.S. in the sales for tomatoes, cucumbers, squash and watermelons. Florida ranks first in the value of sugarcane, oranges and grapes and second in the U.S. in sweet corn and strawberries. In the world market Florida holds the 3$^{rd}$ rank for U.S. states exporting fruit. Because of the economic value of these crops and others grown in Florida, research is critical to increasing yield and profitability and decreasing environmental impact. Although research takes place in almost all nine knowledge area topics, plants and their systems, animals and their systems, biological and technological engineering, and areas related to the environments are of major importance and many of the hatch projects are funded for projects in these areas. This does not mean the other areas are not important but with Florida's unique environment and many kinds of soil not found in other parts of the country it is not surprising that much of the research required in these areas takes place in Florida.

This year there were 366 active Hatch projects, an increase from 231 in 2008. In 2009 there were a total of 49 patents obtained, many of them related to animals, and plants and their systems (including irrigation, waste management and better nutrition). UF research has also produced 948 peer reviewed research publications this year adding to the existing research and providing new ideas, BMPs, and recommendations that are also being adopted into Florida Extension programs and/or disseminated into industry and communities.

Research exceeded the requirement that 25% of total Hatch dollars be used in integrated projects. Florida research also carries out required peer reviews as mandated for all new projects. Copies of the reviews are on file in each department. Stakeholder input is obtained through a long range planning process and using information from advisory committees, and industry and other grass roots interactions. Additional information is obtained through the Extension goal and focus teams who provide research needs identified during their grassroots analysis. Florida research has met all requirements related to stakeholder input and peer review process.

Future Expectations: Although Florida UF/FAMU Extension and UF research continue to increase their impact on the state, it is expected that UF will be asked to reduce their budget again in 2010. FAMU will be asked to make similar cutbacks.

It is unknown how this will impact Extension and research in Florida. We will continue to strive to find viable solutions through research and to develop effective educational programs that improve the quality of life for people whose issues fall under the umbrella of the land grant mission.

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

| Year: 2009 | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 400.0 | 8.0 | 230.0 | 0.0 |
| Actual | 431.2 | 28.0 | 108.6 | 0.0 |

## II. Merit Review Process

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

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

### 2. Brief Explanation

The combined UF/FAMU Extension merit review process takes place annually. FAMU/UF faculty taking place in the review are an expert peer review team. At least three members are on each team and they review the plan developed by each focus team to make sure it provides a clear direction for faculty across the state to follow as they develop their own programs. Instructions can be found at http://pdec.ifas.ufl.edu/meritreview/ . These results are then provided to each focus team when they meet annually to make changes in their logic model, membership, and direction. This website with completed merit reveiws can be found at http://pdec.ifas.ufl.edu/team_review/ . Because of the economic issues and the size of the state merit reviews were done the last two years online. Each team had the opportunity to discuss via polycom (which are located in every county office and in most on campus departments). Both UF and FAMU faculty took part in these processes as integrated teams.

UF research continues to follow the rules for peer review process with a team reviewing each project. Results are shared with the teams and results are stored at the unit level.

## III. Stakeholder Input

### 1. Actions taken to seek stakeholder input that encouraged their participation

- Use of media to announce public meetings and listening sessions
- Targeted invitation to traditional stakeholder groups
- Targeted invitation to non-traditional stakeholder groups
- Targeted invitation to traditional stakeholder individuals
- Targeted invitation to non-traditional stakeholder individuals
- Targeted invitation to selected individuals from general public
- Survey of traditional stakeholder groups
- Survey of traditional stakeholder individuals
- Survey of the general public
- Survey of selected individuals from the general public

**Brief explanation.**

Stakeholders are encouraged to participate through advisory committees, survey's, county and community needs assessments, one-on-one discussions, group meetings and targeted audiences. Florida extension is aware of the

need for grass-roots interaction with clientele across the state of Florida. Special care is given to reach the underrepresented and under-served by involving representatives from these groups in the decision making process. We continue to follow the stakeholder guidelines we developed in the most recent long-range planning process.

**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.**

County faculty are networked into the communities in which they work and are able to identify many of the individuals and groups. Advisory committees identify others. Still others are identified through advertising and reaching out into communities where targeted audiences may be found. Where necessary advertising may be done in other languages. Radio and television may also be incorporated and again where necessary other languages may be used to reach the targeted audiences. Government and service or non-profit organization also help in identifying individuals and groups who would benefit from the land-grant mission.

**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.**

The Florida land-grant colleges use many methods to collect stakeholder input including meeting with advisory groups, meeting with individuals, surveys and public meetings. Extension also uses an annual customer satisfaction survey that is given to a random sampling of clientele we have reached in the past year. At least 12 counties are surveyed each year with all counties being surveyed within a five year period. Extension consistently stays at above a 94% approval rating. Clientele can also make other recommendations for needs within this survey tool.

**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.**

UF/FAMU have developed goal and focus teams around the needs identified by stakeholders. These goals and focus areas change as needed based on additional information received each year from the stakeholders. This

means that the goal and focus teams are kept current on what stakeholders see as the most critical needs. Teams are then composed of faculty from both universities as well as faculty who have research and extension appointments. Also serving on some teams are representatives from industry and other agencies. Using this integrated approach needed research can be identified as well as developing sound research-based solutions. UF research also interacts closely with the industries and individuals IFAS serves to identify additional cutting edge needs that are not seen yet as issues but as potential threats. This allows IFAS to develop research well in advance of the need.

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

UF/FAMU Extension Stakeholders wanted a way to see basic information 24/7 for many of the problems they are trying to solve. There is also many small farms, some only 10 acres that were overwhelming the limited time of the county faculty. A website was developed that continues to grow that provides basic information in a multitude of program areas. It also provides contact information for faculty around the state. This site can be viewed at http://solutionsforyourlife.com.

UF Research has developed a roadmap of needs identified by stateholders and departments that will be conducting research in the future in these need areas. The roadmap can be found at http://research.ifas.ufl.edu/research/

## IV. Expenditure Summary

| 1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS) | | | |
|---|---|---|---|
| Extension | | Research | |
| Smith-Lever 3b & 3c | 1890 Extension | Hatch | Evans-Allen |
| 4368128 | 1702457 | 3307842 | 0 |

| 2. Totaled Actual dollars from Planned Programs Inputs | | | | |
|---|---|---|---|---|
| | Extension | | Research | |
| | Smith-Lever 3b & 3c | 1890 Extension | Hatch | Evans-Allen |
| Actual Formula | 4368128 | 1702457 | 3235528 | 0 |
| Actual Matching | 4368128 | 1702457 | 3235528 | 0 |
| Actual All Other | 0 | 0 | 2360202 | 0 |
| Total Actual Expended | 8736256 | 3404914 | 8831258 | 0 |

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

# V. Planned Program Table of Content

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

**Program # 1**

### 1. Name of the Planned Program

Enhance and Maintain Agricultural and Food Systems

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

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---|---|---|---|---|---|
| 104 | Protect Soil from Harmful Effects of Natural Elements | 5% | 5% | 0% | |
| 111 | Conservation and Efficient Use of Water | 5% | 5% | 0% | |
| 133 | Pollution Prevention and Mitigation | 5% | 5% | 0% | |
| 136 | Conservation of Biological Diversity | 5% | 5% | 0% | |
| 141 | Air Resource Protection and Management | 5% | 5% | 0% | |
| 204 | Plant Product Quality and Utility (Preharvest) | 5% | 5% | 0% | |
| 205 | Plant Management Systems | 5% | 5% | 0% | |
| 211 | Insects, Mites, and Other Arthropods Affecting Plants | 5% | 5% | 0% | |
| 212 | Pathogens and Nematodes Affecting Plants | 5% | 5% | 0% | |
| 213 | Weeds Affecting Plants | 5% | 5% | 0% | |
| 214 | Vertebrates, Mollusks, and Other Pests Affecting Plants | 5% | 5% | 0% | |
| 216 | Integrated Pest Management Systems | 5% | 5% | 0% | |
| 307 | Animal Management Systems | 5% | 10% | 0% | |
| 315 | Animal Welfare/Well-Being and Protection | 5% | 10% | 0% | |
| 402 | Engineering Systems and Equipment | 5% | 0% | 0% | |
| 405 | Drainage and Irrigation Systems and Facilities | 5% | 5% | 0% | |
| 501 | New and Improved Food Processing Technologies | 5% | 5% | 0% | |
| 502 | New and Improved Food Products | 5% | 5% | 0% | |
| 603 | Market Economics | 5% | 0% | 0% | |
| 723 | Hazards to Human Health and Safety | 5% | 5% | 0% | |
| | **Total** | 100% | 100% | 0% | |

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

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

| Year: 2009 | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 159.0 | 3.0 | 0.0 | 0.0 |
| Actual | 118.9 | 11.0 | 0.0 | 0.0 |

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

| Extension | | Research | |
|---|---|---|---|
| **Smith-Lever 3b & 3c** | **1890 Extension** | **Hatch** | **Evans-Allen** |
| 1204807 | 726159 | 0 | 0 |
| **1862 Matching** | **1890 Matching** | **1862 Matching** | **1890 Matching** |
| 1204807 | 726159 | 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

Florida's agriculture and natural resources industry comprises a wide array of economic activities, including commodity production, food and kindred product processing/manufacturing, wholesale and retail distribution, and associated input suppliers and support services. Some of the major commodities produced are fruits, vegetables, livestock, meat and dairy, forest products, ornamental plants, seafood, and sugar.

Protection of plant, animal, and human health is becoming increasingly challenging as Florida's urban areas continue to grow rapidly and the traditional and more isolated farm population shrinks. Concomitantly, small farms are increasing and experiencing significant pest problems, as are communities and natural areas. The Extension community is helping to protect Florida's agricultural, urban and natural environments through an extensive system of programming for stakeholders.

The total economic impacts of these industry and farm sectors on the Florida economy were estimated using a regional economic model, which captures the multiplier effects of the input supply chain and employee household spending (http://edis.ifas.ufl.edu/fe800). In 2007, these industries in Florida collectively&hellip

• Produced $128 billion in output or sales revenues (expressed in 2008 dollars), and generated $60 billion in revenues for other economic sectors due to supply chain and employee spending (multiplier effects), thus providing nearly $188 billion in total output impacts.

• Had foreign and domestic exports and sales to Florida visitors valued at $45 billion.

• Generated $59 billion in value added (personal income and business profits), which represented 8.2 percent of the Gross State Product of Florida ($716 billion), and including multiplier effects had total value added impacts of $93 billion.

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

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

In spite of the important contributions of agriculture/natural resources to the state's economy, environmental and social well-being, a large and growing number of Florida residents and visitors are unaware of this. This lack of awareness leads to policy decisions that may inhibit the industry's ability to compete in a global market. Rapid population growth places increasing pressures on land, water and environmental quality. As a consequence, the agriculture/natural resources sector continues to be challenged for resources including land, water, labor, and other inputs.

Florida has developed numerous activities to reduce the negative effects on agriculture and increase the economic value. Some examples of programs include:

- Conduct workshops and meetings
- Deliver services
- Develop products, curriculum, resources
- Provide training
- provide counseling

•Make assessments
•work with the media
•develop partnerships
More specific examples can be found in the outcomes and impacts section.

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

•Producers •Commodity Associations •Owners/Operators •Managers/Supervisors •Workers/Laborers •Allied Industry Representatives •Small Farmers •Government/Regulatory •County government •State government •Federal government •Tribal government •International governing bodies •Harvesting/Packing/Processing/Distribution •Harvesters/Packers •Processors •Distributors/Transporters •Retailers •Importers/Exporters •Youth •4H(K-12) •Other Youth •Youth Educators •Extension Faculty •Extension Faculty

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

**1. Standard output measures**

| 2009 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---|---|---|---|---|
| **Plan** | 380000 | 6000000 | 0 | 0 |
| **Actual** | 0 | 0 | 0 | 0 |

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

Year: 2009
Plan: 0
Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

| 2009 | Extension | Research | Total |
|---|---|---|---|
| **Plan** | 95 | 0 | |
| **Actual** | 251 | 0 | 251 |

**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 procedures and techniques for managing business operations |
| 2 | Improve procedures and techniques to increase revenue from agricultural practices |
| 3 | Improve procedures and techniques to reduce costs from agricultural practices |
| 4 | Improve management systems, procedures and/or techniques to improve water conservation |
| 5 | Improve management systems, procedures, and/or techniques to improve water quality |
| 6 | improve compliance with local, state and federal regulations |
| 7 | Improve skills in animal sciences |
| 8 | Improve agricultural and environmental knowledge/skills |
| 9 | Improve understanding of agriculture's contribution to the economy by agriculture and natural resources. |
| 10 | Production of safer food |
| 11 | Production of food under more secure conditions |
| 12 | Enhanced technical competence of food producers, packers and processors |
| 13 | More efficient and effective distribution of food products |
| 14 | Improved procedures and techniques for identifying and monitoring pests |
| 15 | Improved procedures and techniques for handling and using agricultural chemicals, fuels, equipment, and other products |
| 16 | Improved procedures and techniques for using protective safety equipment |
| 17 | Improve nutrient applications to increase food production |

## Outcome #1

### 1. Outcome Measures

Improve procedures and techniques for managing business operations

### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

### 3a. Outcome Type:

Change in Action Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 100 | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**

The peanut cultivar Georgia Green was planted on over 90% of SE peanut acres just five years ago. But through the efforts of Extension teaching the threat of single cultivar selection, while also describing the advances offered by new cultivars, this trend has been reversed.

**What has been done**

Due to the increased genetic diversity that is relative to the number of cultivars planted, the peanut crop across the entire SE is at less ecological risk. Planting large acreage of single cultivars present a situation where a new disease or insect pest, to which the one cultivar is susceptible, could easily decimate the entire crop (ie, Irish potato famine). However, planting several cultivars increases the genetic diversity and decreases the likelihood of a cataclysmic disease infestation. Although it is possible that this event may never happen, history (and sound agronomic principles) has taught us the value of risk mitigation through genetic diversity.

**Results**

Because of work done in 2009 in 2010 planting season there will likely be 4 varieties that collectively account for 90% of the SE peanut acres. This strategy will spread risk by allowing more genetic diversity in the collective cropping systems.

The easiest way to track cultivar adoption is through seed sales, which are most often based on grower demand. Therefore, if growers were still demanding Georgia Green, it is likely that this one cultivar would make up 90% of total seed sales. However, this is no longer the case. The fact that new cultivars are in demand indicates an action-based change as a result of the education programs on new peanut cultivars.

### 4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---|---|
| 136 | Conservation of Biological Diversity |
| 204 | Plant Product Quality and Utility (Preharvest) |
| 205 | Plant Management Systems |
| 211 | Insects, Mites, and Other Arthropods Affecting Plants |
| 212 | Pathogens and Nematodes Affecting Plants |

603 Market Economics

**Outcome #2**

**1. Outcome Measures**

Improve procedures and techniques to increase revenue from agricultural practices

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 100 | 0 |

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

**Issue (Who cares and Why)**
The vast majority of Florida?s nearly 44,000 farms are classified as small farms. Calculated on an area or on an economic basis, nearly 90% of all Florida farms are small farms. Recent increased efforts to meet the educational needs of small farmers in Florida became visible through the work of the University of Florida/IFAS and Florida A&M University Small Farms Focus Team. Efforts have included the development of an extensive website specifically targeted at small farmer needs. The site (http://smallfarms.ifas.ufl.edu) receives nearly 2 million hits monthly and includes a calendar of small farms events. A series of regional small farms conferences were initiated in 2006. At least a dozen regional conferences are held annually and in addition, many other county or local programs are being held now. These programs are being attended by a few thousand people annually.

As the success of the local and regional meetings, became very apparent, a common question has also emerged from the small farmers. That question is how can we get more information and get to the ?next level?? Although the regional educational programs have been successful in satisfying many educational needs, all Florida small farmers are faced with similar challenges of (economics: land, gas, inputs) increasing regulatory pressures, challenges of marketing, etc. so that by coming together as a diverse group, solutions can be identified.

**What has been done**
Almost 800 clients attended Florida?s first ever Small Farms and Alternative Enterprises Conference in August of 2009 at the Osceola Heritage Park in Kissimmee, Fl.

**Results**
To provide feedback to the planning committee, an evaluation survey was completed by 214 attendees with about half reporting that they were existing farmers/ranchers. Interestingly, another 52 completing the survey were prospective farmers and when considering this and that 80 exhibitors were also present, it indicates this program was heavily supported by all levels of the small farms industry. A majority of respondents indicated that they were very confident that they would be able to apply the knowledge gained immediately and could now locate additional information, supplies and technology needed for their farm or organization. Networking seemed to be the biggest positive for the conference as an overwhelming majority rated this high in several questions. Helping small farmers understand challenges and identify opportunities was also successful as over 50% of respondents felt like they now understood what lay ahead for those in small scale production and marketing. Almost 100% felt

like this statewide conference should be held at least every other year but would prefer a yearly event. Activities that respondents would do differently on their farms as a result of attending covered the waterfront from adopting a new enterprise such as hydroponic production, improve sustainability by better water and soil management, complying with regulations, become more active politically, embrace organic production, developing a business plan and better record keeping activities, get to know their local extension service and eat more locally grown food. There was a very long list of suggested programs for the next conference which indicates that the attendees are hungry for a lot more in-depth programming and were very vocal in wanting many of the classes offered twice as ?they didn?t want to miss anything.? The top five most valuable experiences indicated by participants were hearing from knowledgeable and passionate farmers rather than only those from academia, sampling non-traditional locally produced foods, being able to visit with vendors who are interested in small farms, attending the wide diversity and high quality of educational presentations and learning about possible new enterprises that could be added to their farm.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 104 | Protect Soil from Harmful Effects of Natural Elements |
| 111 | Conservation and Efficient Use of Water |
| 133 | Pollution Prevention and Mitigation |
| 136 | Conservation of Biological Diversity |
| 204 | Plant Product Quality and Utility (Preharvest) |
| 205 | Plant Management Systems |
| 211 | Insects, Mites, and Other Arthropods Affecting Plants |
| 212 | Pathogens and Nematodes Affecting Plants |
| 213 | Weeds Affecting Plants |
| 216 | Integrated Pest Management Systems |
| 307 | Animal Management Systems |
| 315 | Animal Welfare/Well-Being and Protection |
| 402 | Engineering Systems and Equipment |
| 405 | Drainage and Irrigation Systems and Facilities |
| 603 | Market Economics |

**Outcome #3**

**1. Outcome Measures**

Improve procedures and techniques to reduce costs from agricultural practices

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|

| | | |
|---|---|---|
| 2009 | 100 | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
The collective success of vendors and the response to the Alliance of the Arts Farmers Market has resulted in the establishment of similar markets on Sanibel Island, Gateway Community, Bonita Springs, Alva and at Batista Farms in South Fort Myers. All these markets compete for local vendors, more than 80% of which are new farmers who have attended training in urban gardening and beekeeping agribusinesses provided through the Small Farm Development Program.

**What has been done**
courses are offered by the Small Farm Development Program

**Results**
End of class evaluations have revealed that more than 60% of seminar/class attendants see the courses offered by the Small Farm Development Program as an important resource through which they can gain the knowledge and skills necessary to plan and implement farm enterprises as well as to learn and apply marketing skills for the success of their small agribusinesses. The increase in the number of farmers markets across the county provides greater access to consumers by small farmers who are then able to increase farm output to meet new demand. This has stimulated consumer demand which positively impacted the establishment of new farming enterprises which has raised the total number of local farms in Lee County above 1000.

### 4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---|---|
| 104 | Protect Soil from Harmful Effects of Natural Elements |
| 111 | Conservation and Efficient Use of Water |
| 133 | Pollution Prevention and Mitigation |
| 136 | Conservation of Biological Diversity |
| 141 | Air Resource Protection and Management |
| 204 | Plant Product Quality and Utility (Preharvest) |
| 205 | Plant Management Systems |
| 211 | Insects, Mites, and Other Arthropods Affecting Plants |
| 212 | Pathogens and Nematodes Affecting Plants |
| 213 | Weeds Affecting Plants |
| 214 | Vertebrates, Mollusks, and Other Pests Affecting Plants |
| 216 | Integrated Pest Management Systems |
| 307 | Animal Management Systems |
| 315 | Animal Welfare/Well-Being and Protection |
| 402 | Engineering Systems and Equipment |
| 405 | Drainage and Irrigation Systems and Facilities |
| 502 | New and Improved Food Products |
| 603 | Market Economics |

## Outcome #4

### 1. Outcome Measures

Improve management systems, procedures and/or techniques to improve water conservation

### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 100 | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
Regional leadership in drip irrigation management continues to be an important component of Florida Extension.

**What has been done**
A wide range of educational activities were used to deliver the program including: field days, workshops, publications, electronic delivery (web and DVD) and on-farm visits.

**Results**
Direct consultations with 180 farmers resulted in increased
knowledge in Northeast Florida. Most of those farmers represented new or prospective growers who learned basic principles. However, on-farm consultations with larger existing growers resulted in adoption of improved efficiencies on their farms. One primary target audience has been Suwannee Valley watermelon growers. As a result of cooperation and partnerships with the audience, a very successful watermelon grower program including BMPs was delivered on Dec 3, 2009 with 50 farmers attending and 40 support industry representatives. A drip irrigation management DVD was provided to 40 farmers in the Suwannee Valley. Six on-farm blue dye demonstrations were conducted in 2009 resulting in irrigation management changes.

### 4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---|---|
| 111 | Conservation and Efficient Use of Water |

## Outcome #5

### 1. Outcome Measures

Improve management systems, procedures, and/or techniques to improve water quality

### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 100 | 0 |

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

**Issue (Who cares and Why)**
Over 50% of the clam growers in 4 counties, or about 150 growers, accessed water quality data either by viewing online or visiting the extension office.

**What has been done**
Clam growers have begun to refine and improve management practices, compare crop losses with water quality events, and identify trends in environmental conditions critical to clam health and production.

**Results**
Over 80% of the clam seed suppliers, or 12 suppliers, in the state accessed "real-time" water quality data to determine if conditions at growing sites were compatible with their hatchery or nursery sites prior to selling and shipping seed, resulting in decreased seed mortalities.
A sensory metrics for hard clams cultured in eight states was developed and can be referenced in commercial and regulatory practices. The standardized, science-based profile can be used to describe clams from other growing regions in a similar manner and remains available to support continuing technical innovations and promotion of the shellfish aquaculture industry.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 111 | Conservation and Efficient Use of Water |
| 133 | Pollution Prevention and Mitigation |

**Outcome #6**

**1. Outcome Measures**

improve compliance with local, state and federal regulations

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 100 | 0 |

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

**Issue (Who cares and Why)**
There is always the need to bring growers and producers up to date on policies and regulations. In Alachua County Extension works with many growers and producers to develop those who can function as trainers for others.

**What has been done**
33 agricultural operators attended the Train the Trainer -Worker Protection Standards (WPS) workshop. All attendees received the EPA required safety posters to post at a central location in their agricultural enterprise.

**Results**
100% of the surveyed participants showed knowledge gain about pesticide laws and regulations, worker protection standards, WPS for agricultural workers and pesticide handlers, and how to conduct WPS trainings. 53% of the surveyed participants replied that they would make changes to their agricultural enterprise to comply with the EPA guidelines for Worker Protection Standards. 93% of the surveyed participants replied that they were satisfied to very satisfied with the workshop.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 104 | Protect Soil from Harmful Effects of Natural Elements |
| 133 | Pollution Prevention and Mitigation |

**Outcome #7**

**1. Outcome Measures**

Improve skills in animal sciences

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 100 | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**

Statewide Small Ruminant Program

Since 2007, the Master Goat Program at Florida A&M University (FAMU) has provided educational opportunities and technical training to small and limited resource producers throughout the state of Florida. Producers from the state of Alabama, Georgia and as far away as the country of Panama has also benefited from this program. From the initial training program, over 35% of the participants have gone on to become certified as Master Goat Producers and have adopted six or more sustainable goat production and management practices (i.e., bio-security, pasture rotation) on their farm. It is estimated that producers have saved over $1,500 per year by controlling and reducing disease outbreaks on their farm and by using best management practices. Producers were further able to increase their saving by acquiring animal husbandry skills (i.e., ear tagging, castration) that reduce their need for veterinarian assistance. It was estimated that producers saved over $16,250 (50/hd/herd) annually. In 2009, the Master Goat Program has further enhanced the services it provides its producers by partnering with the Veterinarian Technology Program at FAMU. Florida A&M University has also help spearhead a Master Goat Program at Tuskegee University and the program is now serving as a model for other goat programs around the United States.

**What has been done**

Goat production and the care for animals on small farms can lead to greater levels of profitability and sustainability for farmers who might otherwise not have enough acreage to be sustainable. Learning how to care for these animals can lead to success. Goat certification courses provide necessary information

**Results**

Goat Producers Certification Course, FAMU Community Development Center, seven (7) farmers participated. June 5, 2008. Course participants were asked to match questions with corresponding answers in pre-test given before the presentation and post-test after the presentation. The same questions were given for both pre- and post test. Pre-test results showed that 4 or 50% of farmers showed 80% awareness and 2 or 25% showed 100% awareness whereas 1 or 12.50% showed 60% and 40% awareness respectively. Post-test showed 2 or 28.6% had 100% awareness whereas 4 or 57.1% showed 80% awareness. Awareness ranged from 40% to 100% in the pre-test and from 60% to 100% in the post-test. The greatest change in awareness in farmers was from 50% to 57.1% for farmers showing 80% awareness.

Presentations for Small Livestock Producers

Goat Producers Certification Course, FAMU Community Development Center, seven (7) farmers participated. June 5, 2008. . Course participants were asked to match questions with corresponding answers in pre-test given before the presentation and post-test after the presentation. The same questions were given for both pre- and post test. Pre-test results showed that 2 or 28.6% of farmers showed 80% preparedness and 40% awareness whereas 1 or 14.30% showed 60%, 50% and 30% preparedness respectively. Post-test showed 1 or 14.6% had 100%, 50% and 40% preparedness respectively, whereas 4 or 57.1% showed 80% preparedness. Preparedness ranged from 30% to 80% in the pre-test and from 40% to 100% in the post-test. The greatest change in awareness in farmers was from 28.6% to 57.1% for farmers showing 80% preparedness.

Conducted work with farmers in North West counties of Florida and provided health care for animals with Moxidectin and Ivermectin pour-on for cattle in meat goats and sheep and provided information on management and health practices and feeding. Visited twenty-five (25) farmers, trimmed animal hooves, ear-tagged animals and treated animals with Ivermectin for intestinal parasites. As a result of conducting Herd Health and Management Program with small ruminants and economically disadvantage farmers focusing on controlling parasites in small ruminants, sales of animals and value-added products, it is estimated that clients generated/produced income increased by an average of 20% over previous year.

### 4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---|---|
| 307 | Animal Management Systems |
| 315 | Animal Welfare/Well-Being and Protection |

603 Market Economics

**Outcome #8**

**1. Outcome Measures**

Improve agricultural and environmental knowledge/skills

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 100 | 0 |

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

**Issue (Who cares and Why)**
The vast majority of Florida's nearly 44,000 farms are classified as small farms. Calculated on an area or on an economic basis, nearly 90% of all Florida farms are small farms. Recent increased efforts to meet the educational needs of small farmers in Florida became visible through the work of the University of Florida/IFAS and Florida A&M University Small Farms Focus Team. Efforts have included the development of an extensive website specifically targeted at small farmer needs. The site (http://smallfarms.ifas.ufl.edu) receives nearly 2 million hits monthly and includes a calendar of small farms events. A series of regional small farms conferences were initiated in 2006. At least a dozen regional conferences are held annually and in addition, many other county or local programs are being held now. These programs are being attended by a few thousand people annually.

As the success of the local and regional meetings, became very apparent, a common question has also emerged from the small farmers. That question is how can we get more information and get to the "next level"? Although the regional educational programs have been successful in satisfying many educational needs, all Florida small farmers are faced with similar challenges of (economics: land, gas, inputs) increasing regulatory pressures, challenges of marketing, etc. so that by coming together as a diverse group, solutions can be identified.

**What has been done**
Almost 800 clients attended Florida's first ever Small Farms and Alternative Enterprises Conference in August of 2009 at the Osceola Heritage Park in Kissimmee, Fl. To provide feedback to the planning committee, an evaluation survey was completed by 214 attendees with about half reporting that they were existing farmers/ranchers. Interestingly, another 52 completing the survey were prospective farmers and when considering this and that 80 exhibitors were also present, it indicates this program was heavily supported by all levels of the small farms industry.

**Results**
A majority of respondents indicated that they were very confident that they would be able to apply the knowledge gained immediately and could now locate additional information, supplies and technology needed for their farm or organization. Networking seemed to be the biggest positive for the conference as an overwhelming majority rated this high in several questions. Helping small farmers understand challenges and identify opportunities was also successful as over 50% of respondents felt like they now understood what lay ahead for those in small scale

production and marketing. Almost 100% felt like this statewide conference should be held at least every other year but would prefer a yearly event. Activities that respondents would do differently on their farms as a result of attending covered the waterfront from adopting a new enterprise such as hydroponic production, improve sustainability by better water and soil management, complying with regulations, become more active politically, embrace organic production, developing a business plan and better record keeping activities, get to know their local extension service and eat more locally grown food. There was a very long list of suggested programs for the next conference which indicates that the attendees are hungry for a lot more in-depth programming and were very vocal in wanting many of the classes offered twice as "they didn't want to miss anything." The top five most valuable experiences indicated by participants were hearing from knowledgeable and passionate farmers rather than only those from academia, sampling non-traditional locally produced foods, being able to visit with vendors who are interested in small farms, attending the wide diversity and high quality of educational presentations and learning about possible new enterprises that could be added to their farm.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 111 | Conservation and Efficient Use of Water |
| 133 | Pollution Prevention and Mitigation |
| 136 | Conservation of Biological Diversity |
| 141 | Air Resource Protection and Management |
| 307 | Animal Management Systems |
| 405 | Drainage and Irrigation Systems and Facilities |
| 603 | Market Economics |

**Outcome #9**

**1. Outcome Measures**

Improve understanding of agriculture's contribution to the economy by agriculture and natural resources.

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 100 | 0 |

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

**Issue (Who cares and Why)**
Many Floridians, especially those who are new to the region, are not aware that agriculture/natural resources and related industries remain a major economic driver in the state, providing millions of jobs and billions in income and tax revenues, and also support lifestyle amenities of open space. The result is that public support for agriculture/natural resources is lacking on issues such as farmland retention, conflicts between farmers and urban dwellers, and willingness to pay for greater environmental protection.

**What has been done**

The primary educational product of this program is a series of annual reports detailing the economic impacts of agriculture, natural resources and related industries in the state of Florida and its counties and regions. These reports have been produced since 2004, and made available as electronic documents on UF/IFAS' Electronic Data Information Source website (http://edis.ifas.ufl.edu). Presentations and fact sheets have also been developed, and in-service trainings for extension professionals have been conducted. Statistics on usage of these reports are tracked and reported annually. The program maintains strong alliances with agriculture advocacy organizations (e.g. Farm Bureau), agricultural commodity organizations, professional organizations, and other state universities with land grant missions to disseminate the information generated.

**Results**

The most recent report for 2008 (available at http://edis.ifas.ufl.edu/FE829) showed that Florida agriculture, natural resources and related industries generated $134 billion in direct output or sales revenues; $29 billion in revenues for other economic sectors due to supply chain and employee spending (multiplier effects), $163 billion in total output (revenue) impacts; $33 billion in foreign and domestic exports and sales to Florida visitors; $61 billion in direct value added or personal and business net income, which represented 8.4 percent of the Gross Domestic Product (GDP) of Florida ($722 billion); $77 billion in total value added impacts (including multiplier effects); 1.38 million fulltime and part-time jobs, ranking second among major industry groups, and representing 13.7 percent of all jobs in the state; 1.61 million jobs in total statewide employment impacts; $9.3 billion in indirect business taxes paid to local, state and federal governments.

These reports have consistently been among the most demanded in the Food & Resource Economics Department. In 2009, there were over 3,400 accessions (downloads) of the 2007-08 study/report from the UF/IFAS-EDIS website. This information has been used by commodity organizations to improve public understanding of their business. It has also been used by university administrators to make the case for continued funding of agriculture and natural resource programs.

### 4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---|---|
| 603 | Market Economics |

## Outcome #10

### 1. Outcome Measures

Production of safer food

### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 100 | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
Tourism, hospitality, and entertainment are Florida?s largest industries, and animal protein serves as the center of the plate for the food service industry and the largest portion of the food service dollar. One of the primary vehicles to increase animal protein demand is to improve consumer confidence in meat animal products, thus stimulating growth in domestic consumer markets. Therefore, a more educated team of animal protein salesmen and culinary instructors will make progress toward meeting this goal.

**What has been done**
One Extension specialist conducted two seminars to enhance beef demand in Florida food service funded by the Florida Beef Council with a total of 120 attendees and two seminars for Florida culinary instructors with a total of 45 attendees.

**Results**
These programs impact thousands of individuals who influence demand for animal protein.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 501 | New and Improved Food Processing Technologies |
| 502 | New and Improved Food Products |
| 603 | Market Economics |

**Outcome #11**

**1. Outcome Measures**

Production of food under more secure conditions

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 100 | 0 |

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

**Issue (Who cares and Why)**
All meat and poultry processors, fish and seafood processors, and juice processors are required by federal law to have a Hazard Analysis and Critical Control Point (HACCP) program. These programs function as systematic accountability for producing safe food products. Everyone who administers a HACCP plan must be trained in the seven principals of HACCP.

**What has been done**
Most training programs are performed by food industry consultants and are very costly for processors to attend and involve little to no follow up. One state specialist administered basic or advanced HACCP training to 85 tax payers

in 2009, charging essentially only to cover expenses.

**Results**
Approximately 15 processors have requested and received advice about food safety or regulatory problems at their facilities at no cost.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 204 | Plant Product Quality and Utility (Preharvest) |
| 501 | New and Improved Food Processing Technologies |
| 502 | New and Improved Food Products |
| 603 | Market Economics |

**Outcome #12**

**1. Outcome Measures**

Enhanced technical competence of food producers, packers and processors

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 50 | 0 |

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

**Issue (Who cares and Why)**
Dairy cattle comprise nearly one-half of the estimated cattle harvested at cull cow processing facilities annually. Consequently, with the current economic situation and the dairy herd liquidation underway, it is critical that dairy producers understand and implement management strategies that will maximize their cow salvage value as well as improve the welfare status and meat quality of all cull cows marketed.

**What has been done**
A two-day Dairy Beef Quality Assurance (BQA) program was conducted with a total of 38 participants, representing approximately 25,000 dairy cows or 20% of the Florida herd currently in production.

**Results**
A total of 19 participants responded to the exit survey. In the survey?s first section, designed to measure the degree of learning achieved across workshop sessions, 88% of respondents indicated that they gained some degree of new knowledge, ranging from ?A Great Deal Learned? to ?Some New Knowledge? attained. The second section was a series of 8 true-false questions to evaluate producer knowledge of BQA principles. Mean score was 75% correct. In the third section, 34% of respondents indicated that the timely marketing of cull cows was the most important production control point they could manage to improve meat quality. Additionally, 100% of

respondents indicated that they would adopt at least one new production practice as a result of attending the workshop, with 29% of respondents indicating they would adopt three or more new practices. Producers were also asked to indicate the degree to which they would alter current management for 7 production and marketing practices that would lead to improved welfare status and/or meat quality of culled cows. Among respondents, 50% indicated they would make at least one degree change (on a 4-point scale) in their management practices. Finally, 100% of respondents indicated that the workshop was an effective method of teaching producers to improve the marketability and value of cull dairy cattle, which denotes that similar BQA workshops targeting dairy producers would be successful in other states.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 307 | Animal Management Systems |
| 502 | New and Improved Food Products |
| 603 | Market Economics |

**Outcome #13**

**1. Outcome Measures**

More efficient and effective distribution of food products

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 50 | 0 |

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

**Issue (Who cares and Why)**
For those trying to enter the agricultural production arena there are many hurdles that must be overcome. Through educational programs Extension can provide this information. One example is as follows:

**What has been done**
A family re-entering into production agriculture has taken a holistic approach to family involvement. Determined to make the property a viable income, a father/daughter team has attended many Extension programs, locally and nationally. Marketing "Natural Red Meat" products that they have produced on their forage based operation. Having each attended the Seeded Bermuda grass field days and Spring Rancher?s Forum, they await planting based on the research outcome. Additionally they indicated they would like to participate in UF forage research projects.

**Results**
They have overcome the USDA hurdles on labeling and now are direct marketing their products directly to chefs with plans to further develop a distribution system for other like minded producers.
7

As part of community involvement and product outreach they recently participated on the 2009 Volusia County Farm Tour, which they viewed as a tremendous success to them personally and the business.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 502 | New and Improved Food Products |
| 603 | Market Economics |

**Outcome #14**

**1. Outcome Measures**

Improved procedures and techniques for identifying and monitoring pests

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 100 | 22217 |

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

**Issue (Who cares and Why)**

Integrated Pest Management of the Western Flower Thrips, Melon Thrips, and Chilli Thrips in Florida Vegetables (Thrips Action Team, Joseph Funderburk Leader). Growers in all regions of Florida have responded to the influx of new pest thrips by applying broad-spectrum insecticides according to a calendar schedule. This disrupted previously established IPM programs resulting in a classic '3R' situation: 1) Resistance to insecticides, 2) Resurgence of thrips populations due to the killing of natural enemies and competitor native species of thrips, 3) Replacement with non-target species elevated in pest status. The crops at risk from pest injury in Florida represent billions of dollars in economic impact, due to the damage from uncontrolled thrips, the cost of pesticides that are ineffective, and the loss to growers from damage from non-target pests that are elevated in pest status.

**What has been done**

Maintained an up-to-date thrips website including new and revised documents (http:ipm.ifas.ufl.edu, Thrips), updated EDIS bulletins, conducted Extension workshops in South Florida, organized symposia at professional meetings, delivered field demonstrations, provided training sessions for Extension Agents and clientele, visited growers in the field, and produced news releases.

Specific accomplishments and activities include: pepper demonstrations and thrips monitoring in Palm Beach and Hillsborough counties; strawberry demonstrations at Gulf Coast REC; green bean demonstration at Everglades REC; recommendations developed for Requiem, Radiant, Beleaf, Movento and Cyazypyr insecticides; six scientific and one EDIS papers published; a chilli thrips training module; thrips identification deck; presentations at the 6th International IPM Symposium in Portland, Oregon; Entomological Society of America meetings at Montgomery, Alabama and Indianapolis, Indiana; Florida entomological society, Florida State Horticultural Society; and many Extension training sessions; and continuous updating of the thrips website (35,148 sessions in 2009). This program met the following Objectives:

1. Increased the number of growers adopting the UF/IFAS IPM program for vegetables, 2. Increased the profitability of vegetable farming by decreasing damage caused by thrips and thrips-vectored topsoviruses, and 3. Assured the availability of pesticides by monitoring for resistance and assisting with registration and re-registration.

**Results**
A system is in place for monitoring insecticide resistance and assistance has been provided in registering new insecticides that can be rotated in a resistance prevention program. Growers using the IPM program have saved $1.4 million combining savings from increased yields and pesticide reductions. UF/IFAS IPM recommendations were published in a refereed scientific journal and provided to growers in a series of Extension training meetings. Wider impacts- Growers will continue to have effective, economical, and sustainable IPM programs for fruiting vegetables. The environment is being protected and beneficial insects conserved. This kind of success can be repeated in other Florida counties and elsewhere in the Southeast.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 211 | Insects, Mites, and Other Arthropods Affecting Plants |
| 212 | Pathogens and Nematodes Affecting Plants |
| 214 | Vertebrates, Mollusks, and Other Pests Affecting Plants |
| 216 | Integrated Pest Management Systems |

**Outcome #15**

**1. Outcome Measures**

Improved procedures and techniques for handling and using agricultural chemicals, fuels, equipment, and other products

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 100 | 0 |

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

**Issue (Who cares and Why)**
FAMU: Pesticide in the environment and hazards associated with improper use of pesticide are environmental and human risks related to agricultural chemical pest control.

**What has been done**
County extension program efforts in pesticide education that are aimed at personnel safety and the protection of wildlife and the environment has resulted in 199 trained agricultural personnel in the general standards and private applicator pest control.

**Results**

Fifty-three pesticide d for restrict use pesticide certification license were administered. Pesticide education efforts resulted in a better qualified agricultural workforce, safer handling and application of chemicals, and unintended releases to the environment.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 133 | Pollution Prevention and Mitigation |

**Outcome #16**

**1. Outcome Measures**

Improved procedures and techniques for using protective safety equipment

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 50 | 0 |

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

**Issue (Who cares and Why)**
In recent years, an increasing number of injuries and fatalities on rural roads have been caused by automobile drivers colliding with agricultural equipment. Much of the US highway system is composed of rural roads and with the increasing overlap of residential and agricultural areas, the safety of drivers of all kinds of vehicles on our rural roads has become a public health concern. A recent study showed that most states have little or no information about agricultural vehicles in their driver?s manual, and these manuals are the basis of driver training courses. It was even found that the most common safety symbol, the Slow Moving Vehicle Emblem, was omitted from a majority of driver?s manuals.

**What has been done**
Development of a website

**Results**
One Florida Extension specialist and the Florida AgSafe Program published an on-line interactive training lesson on this subject which is made freely available through the National Agricultural Safety Database, a Web site visited by millions of people each year. Our driver safety lesson was released in time for this year?s National Agricultural Safety Week, the theme of which was safely sharing the road with agricultural equipment.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 723 | Hazards to Human Health and Safety |

## Outcome #17

### 1. Outcome Measures

Improve nutrient applications to increase food production

### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | {No Data Entered} | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
Give a brief description of the specific problem situation that this program helped to solve:
Currently, annual nutrient application recommendations for sugarcane production on mineral soils are not fully utilized by growers in south Florida due to uncertainty regarding sufficient nutrient rates for optimum sugarcane production. These uncertainties and lack of field scale data are compounded by the fact that current sugarcane fertilizer recommendations for both organic and sandy soils were developed decades ago.

**What has been done**
Small and large plot experiments with controlled release (CRF) and soluble fertilizers at grower/cooperator sites were used as field demonstration sites for the grower community to observe. Results from field demonstrations and replicated experiments have been provided to growers in two workshops in 2009, and a follow up grower meeting scheduled in 2010.

**Results**
1)Use of 25 to 35% less fertilizer N with CRF was demonstrated over several seasons.
2)Grower awareness in improved nutrient use efficiency with controlled CRF has resulted in increased fertilizer sales of this typically costly fertilizer source.

### 4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---|---|
| 104 | Protect Soil from Harmful Effects of Natural Elements |
| 205 | Plant Management Systems |

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

**External factors which affected outcomes**

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

**Brief Explanation**

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Comparison between locales where the program operates and sites without program intervention

**Evaluation Results**

In this program area, "Enhance and Maintain Agricultural and Food Systems, 68,477 people were evaluated for change in knowledge and 87.5% or 59,935 said they increased their knowledge following an Extension Educational program. A total of 40,250 were surveyed for changes in behavior and 63.8% or 25,676 made positive behavioral changes. Over 27,301 were asked about broader changes to their community and 15,912 or 58.3% concluded that the changes they had made brought about broader social, environmental or economic changes in their communities.

**Key Items of Evaluation**

Through the cooperative efforts of the state Citrus Extension Specialists (Horticulture, Entomology and Plant Pathology) and seven multi-county Citrus Extension Agents the Citrus Canker, Greening and Exotics Diseases Education Program has reached virtually every commercial citrus grower in Florida over the past two years. When HLB was first found in Florida many growers were reluctant to believe that they needed to remove trees to try to stop yet another disease. This reluctance devastated thousands of acres of citrus in Florida's southern production area. Through our education program we have been able to educate growers about the negative effects of reacting slowly to this disease. As a result, the majority of growers in the central and northern production areas of the state began to aggressively remove infected trees and control the disease's insect vector to slow the spread of the disease. A direct result of this change in behavior and attitude toward stopping this disease is that from 2006 to 2008 the number of trees in the northern citrus growing region declined by only 9% compared to 50% in the southern region during the same time

(Commercial Citrus Inventory 2008, Florida Agricultural Statistics Service).

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

**Program # 2**

### 1. Name of the Planned Program

Maintain and Enhance Florida's Environment

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

1. Program Knowledge Areas and Percentage

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

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

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

| Year: 2009 | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 40.0 | 1.0 | 0.0 | 0.0 |

| | | | | |
|---|---|---|---|---|
| Actual | 35.5 | 1.0 | 0.0 | 0.0 |

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

| Extension | | Research | |
|---|---|---|---|
| **Smith-Lever 3b & 3c** | **1890 Extension** | **Hatch** | **Evans-Allen** |
| 359210 | 97656 | 0 | 0 |
| **1862 Matching** | **1890 Matching** | **1862 Matching** | **1890 Matching** |
| 359210 | 97656 | 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

Recreation Service Operations
Construction Operations
Agricultural Operations
Landscape and Horticultural Service Operations
Homeowners
Adults
Adult Volunteers
Renters
School Age Youth
Youth Volunteers
Administrators of Education
County Government
Administrators of Environmental Quality

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

### 1. Standard output measures

| 2009 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---|---|---|---|---|
| **Plan** | 300000 | 1100000 | 0 | 0 |
| **Actual** | 0 | 0 | 0 | 0 |

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

**Patent Applications Submitted**

Year: 2009

Plan: 0

Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

| 2009 | Extension | Research | Total |
|---|---|---|---|
| Plan | 35 | 0 | |
| Actual | 35 | 0 | 69 |

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

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

## V. State Defined Outcomes Table of Content

| O. No. | OUTCOME NAME |
|---|---|
| 1 | Improved management systems, procedures, and/or techniques to improve water conservation |
| 2 | Improved management systems, procedures, and/or techniques to maintain or improve water quality |
| 3 | Increase understanding of Florida's coastal and marine environment |
| 4 | Improved procedures and techniques to reduce environmental impact from human activity |
| 5 | Improved compliance with local, state and federal regulations |
| 6 | Improved procedures and techniques to deliver environmental education |
| 7 | Change behaviors that impact environmental quality |
| 8 | Develop skills required for effective critical thinking, problem solving and decision making |
| 9 | Improved skills for developing service learning and other community engaging activities |
| 10 | Improve agricultrual and environmental knowledge/skills |
| 11 | Increase understanding of how Florida's natural resources ecosystems and how they respond to human activity |

## Outcome #1

### 1. Outcome Measures

Improved management systems, procedures, and/or techniques to improve water conservation

### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 100 | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
Despite the fact that we receive more than 50 inches of rainfall per year, Florida's fresh water supply is running low in some areas. Our water supply is finite and must be stretched across a greater number of user as Florida grows. One way to accomplish this is by using less irrigation water in both agricultural and urban environments. In this regard, our Focus Team concentrated particularly on "smart" irrigation technology and web-based irrigation scheduling programs.

**What has been done**
1.In-service training for county faculty.
2.Local workshops for agricultural producers and urban landscape managers.
3.Certified Crop Adviser training to provide Continuing Education Units.
4.Websites, e.g. http://irrigation.ifas.ufl.edu.
5.EDIS publications.
6.Trade magazine articles.
7.Videos (see website cited above).
8.Florida Automated Weather Network (FAWN) http://fawn.ifas.ufl.edu.

**Results**
1.Soil water-based technology is being installed in Home Owner Associations (HOAs) and single family residences as part of a collaborative project among Miami-Dade County Water and Sewer, Miami-Dade County Extension Service and UF-TREC. In 2008, approximately 45 soil water based sensors were installed in HOAs in Miami-Dade County as part of the collaborative project. Some sites are being monitored to assess water savings. Data collected thus far indicate a 20% water savings for turf and ornamental landscape irrigation with the soil moisture based irrigation technology. Assuming 50% of automated irrigation systems install technology in Miami-Dade County, water savings are estimated to be 19 million gallons per day, providing Miami-Dade County with "new water" from water conservation and thus saving the expense of acquiring this water through other means.
2.In 2009, the http://irrigation.ifas.ufl.edu website traffic was 19,956 sessions (55 per day average), and hits were 123,499. A session is a period of time as defined by the website monitoring service and indicates a single user with multiple page views of the site; whereas, hits are individual page requests from the server. In addition, there were 24,262 hits on the turfgrass virtual field day website after monitoring began in 2009. There is a "Smart Water Application Technology" video as part of a series of turfgrass educational videos.

3.In 2009, six organized extension educational events were conducted in Florida including one in-service training for county faculty. We reached 257 individuals through these organized events. All individuals at these organized events were tested to gauge knowledge change. Approximately 70% of these tested individuals reported an increase in knowledge. As an ongoing effort, this increase in knowledge has led to a direct impact on implementation of smart irrigation technologies within Florida landscapes. In addition to documented knowledge gain, on average satisfaction with workshops was 4.6, where 5.0 was a perfect score.

**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**

Improved management systems, procedures, and/or techniques to maintain or improve water quality

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 1000 | 0 |

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

**Issue (Who cares and Why)**
Safe drinking water is a key element to achieving a healthy lifestyle and maintaining health. Orange County residents will become more knowledgeable and capable of insuring the safety of their own drinking water.

**What has been done**
100% class participants identified they would insure the safety of their water with 100% agreeing to test their drinking water

**Results**
Pre and post assessment surveys developed by a state grant indicated that participants exhibited a 20% increase in how wells are polluted and a 10% increase in knowledge of correct actions to take to solve the health issue. They also exhibited a 33% increase in identifying how wells are most often polluted.

**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**

Increase understanding of Florida's coastal and marine environment

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 500 | 0 |

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

**Issue (Who cares and Why)**
Fisheries management is an extremely complex process, particularly in the Gulf and South Atlantic region. Fishing mortality associated with releasing fish after capture has become an important issue considered by managers. Reef fish brought up from depth are often subjected to the physical damages associated with barotrauma, which results in air bladder rupture and other forms of embolism. Of particular interest to managers is find way to reduce barotrauma in reef fish intended to be released. The technologies associated with this release process have been an important focus of applied research and outreach activities in the Gulf and South Atlantic region, where the recreational fisheries for reef fish are important and play a large role in regional fisheries management efforts.

**What has been done**
Conducted a ?Welcome Back Snowbird? workshop to educate seasonal anglers about new reef gear fishing rules that took effect while they were away (summer 2008). Participants learned about the new rules, benefits of sustainable angling gear and proper gear use. Sustainable angling practices were taught to young anglers participating in a youth fishing tournament and an in school fishing program. Young anglers practiced using dehooking devices by removing circle hooks from cardboard boxes.
An educational display on catch and release practices was presented at the 2009 Florida West Coast Artificial Reef Workshop and the 2009 Bradenton Herald Fishing College. Catch and release brochures were also distributed at the following fishing tournaments: Croswaith Memorial Tournament, Fishing the Islands Redfish Tournament and Desoto Celebration Tournament. A total of 1,120 brochures were distributed.
Manned a weekly sustainable fishing practiced exhibit in front of the Naples Pier from January to April 2009 to educate resident and visiting anglers on proper fish handling practices and details of new state and federal reef gear rules. Participants had the opportunity to practice using dehooking tools, ask questions about new regulations, and receive educational resources.
Organized and instructed a Marine Fisheries Regulations Workshop intended for park rangers, resource managers, and informal educators in December 2009. Workshop topics focused on marine fisheries management, state and federal reef gear regulations, fishing license requirements, derelict crab traps, net gear regulations, and tips for identifying and reporting fisheries violations.

**Results**

A total 227 anglers visited the sustainable fishing practices exhibit at the Naples Pier in 2009. 50 anglers asked about using dehooking tools, and 100% were able to correctly use one following instruction and practice. Short-term knowledge gain on state and federal fisheries regulations improved by approximately 25% using pre/post test scores. Based on workshop evaluations 100% of participants agreed (to some degree) the workshop improved their knowledge and understanding of Florida?s marine fisheries regulations, their confidence to educate anglers about these regulations and their ability to recognize and report violations.
As a result of Florida Sea Grant's efforts to train saltwater anglers about new state and federal reef gear rules, The Florida Fish and Wildlife Conservation Commission (FWC) considered one of the program?s greatest impacts to be the noted lack of controversy during the rule-change implementation period. Sea Grant, FWC, and NOAA fisheries collaborated to standardize their talking points and communications messages to audiences which would be affected by the new reef gear rule changes.
A total of 235 young anglers participating in the Kids Cup Tournament were able to correctly demonstrate sustainable angling practices using a cardboard box to simulate a fish. Seventyseven (77) seasonal anglers attended workshop. Of those, 88% of participants were very confident using circle hooks, 92% were very confident or somewhat confident using dehooking tools and 76% were very or somewhat confident using venting tools at end of workshop (end of program survey). In a six month follow up survey, workshops participants indicated 100% had used circle hooks, 82% had used dehooking tools and 18% had used venting tools. The majority used circle hooks and dehooking tools 75-100% of the time. 100% of respondents were able to identify at least one benefit of using circle hooks, dehooking tools and venting tools.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 134 | Outdoor Recreation |
| 135 | Aquatic and Terrestrial Wildlife |
| 605 | Natural Resource and Environmental Economics |

**Outcome #4**

**1. Outcome Measures**

Improved procedures and techniques to reduce environmental impact from human activity

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 100 | 0 |

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

**Issue (Who cares and Why)**

Many school-age children spend the majority of their time indoors. This observation recently started a national

initiative, "No Child Left Indoors," to expose youth to the natural environment.

**What has been done**
Youth from Flagler and St Johns Counties had the opportunity to explore the coastal outdoors during two "Coastal Camps" in July and August, 2009. Thirty-three youth aged eight to thirteen learned about sun safety, water conservation, fish, plankton and manatees during the four-day programs.

**Results**
Students discovered that sunscreens with an SPF of 30 or higher blocked UV light better than those with SPFs of 4 or 15, and were reminded to wear hats, sunglasses, shirts and sunscreen to protect them from sunburn. As a result of the camp, 89% of the youth were able to correctly identify that most water used at home is used for lawns and gardens (compared to 18% on the pre-test). All of the youth felt that we need to try and reduce the amount of water that we use to make sure there is enough to go around (an increase from 71% on the pre-test.) On the last day of camp, participants created posters, audio podcasts or video public service announcements to teach people about ways to protect manatees.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 111 | Conservation and Efficient Use of Water |
| 133 | Pollution Prevention and Mitigation |
| 136 | Conservation of Biological Diversity |
| 403 | Waste Disposal, Recycling, and Reuse |
| 723 | Hazards to Human Health and Safety |

**Outcome #5**

**1. Outcome Measures**

Improved compliance with local, state and federal regulations

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 100 | 0 |

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

**Issue (Who cares and Why)**
In June 2008 new state and federal regulations required saltwater anglers in the Gulf of Mexico to have on board and use circle hooks when using live bait, dehooking devices, and venting tools when targeting reef fish. These conservation measures were put in place to help protect post-release survival rates of reef fish.

**What has been done**

Florida Sea Grant agents and specialists coordinated statewide training of anglers through collaboration with FWC and NOAA Fisheries in 2008 and 2009. Sea Grant, FWC, and NOAA fisheries collaborated to standardize their talking points and communications messages to audiences which would be affected by the new reef gear rule changes. As a result of this successful partnership, FWC has since requested Florida Sea Grant's assistance in derelict crab trap outreach programs.

**Results**
1. 60% more monofilament line was collected and recycled compared to 2008.
2. Participants who attended catch and release workshops were assessed to determine their confidence in using circle hooks, venting tools and dehooking tools. 88% of participants were very confident using circle hooks, 92% of participants were very confident or somewhat confident using dehooking tools and 76% of participants were very or somewhat confident using venting tools.
3. 100% of participants who attended the Derelict Crab Trap train the trainer clean-up indicated they would organize or participate in future clean-ups. At present three additional clean-ups were held and three are in the planning stages.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 605 | Natural Resource and Environmental Economics |
| 610 | Domestic Policy Analysis |

**Outcome #6**

**1. Outcome Measures**

Improved procedures and techniques to deliver environmental education

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 1000 | 0 |

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

**Issue (Who cares and Why)**
In 2009, Escambia County Extension offered 4-H Fall Harvest Days to 372 students and 68 adult leaders/chaperones/teachers at the Langley Bell 4-H Center.

**What has been done**
a. Our local Escambia County 4-H Foundation supported this program financially with a grant of $2500.
b. This program targeted 3rd grade students from three public elementary schools and one private school. Four days of field trips were planned with five workshops each day for the youth to rotate through.
c. Over 22 volunteers assisted with the program and contributed over 96 hours.

d. Teachers were provided a curriculum with 10 age appropriate, peer reviewed, FCAT standardized lesson plans to further work with their students on topics related to agriculture that have applications across subject matters.

**Results**
Overall knowledge increase was 22%. Teachers rated the field trip excellent and all want to come back next year.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 104 | Protect Soil from Harmful Effects of Natural Elements |
| 111 | Conservation and Efficient Use of Water |
| 112 | Watershed Protection and Management |
| 133 | Pollution Prevention and Mitigation |
| 136 | Conservation of Biological Diversity |
| 605 | Natural Resource and Environmental Economics |

**Outcome #7**

**1. Outcome Measures**

Change behaviors that impact environmental quality

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 100 | 0 |

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

**Issue (Who cares and Why)**
The Green Expo and Education Fair

**What has been done**
The Green Expo and Education Fair incorporated a evaluation at the completion of the event and 6 months following.

**Results**
Specific behavior changes reported in the 6 month follow-up survey included: increase in recycling, composting and mulching practices; installation and use of rain barrels, incorporating more energy conservation practices in their home including adding insulation to homes and replacing present lightbulbs with energy efficient ones; reduce the use of toxic cleaners; use alternate means of transportation (bicycles). 87% of those surveyed indicated that the Green Expo was a significant contributor to them making these behavior changes.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 605 | Natural Resource and Environmental Economics |
| 608 | Community Resource Planning and Development |

## Outcome #8

**1. Outcome Measures**

Develop skills required for effective critical thinking, problem solving and decision making

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 20 | 0 |

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

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

**What has been done**
Results from long-term research and monitoring projects on American crocodiles and American alligators in Florida are being used by the US Department of the Interior and US Army Corps of Engineers to evaluate and assess restoration plans and projects.

**Results**
Results of a decision support/ landscape modeling program have been used to guide selection of alternatives for the Comprehensive Everglades Restoration Plan (CERP). This effort has allowed decision-makers to choose alternatives most effective at meeting ecological goals of CERP at minimum cost. Once the best restoration alternatives are chosen, the next important task is to determine the success of restoration efforts. Projects encompassing wildlife habitat relations provide baseline information and reliable methods for monitoring selected ecological attributes.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 605 | Natural Resource and Environmental Economics |
| 608 | Community Resource Planning and Development |
| 610 | Domestic Policy Analysis |

## Outcome #9

### 1. Outcome Measures

Improved skills for developing service learning and other community engaging activities

### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

### 3a. Outcome Type:

Change in Action Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 50 | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
Florida's natural resources, both land and water-based, are continually being threatened by growth and development. Florida citizens need high quality, engaging environmental education (EE) programs that promote awareness, understanding, and conservation of our natural resources. For best impact, EE programs must be based on sound science, proven educational methodologies, and make use of today's educational technologies. In order for Florida's adult citizens to understand, manage, teach and make decisions about natural resources in Florida, an adult EE program may foster stewardship and conservation of natural resources.

**What has been done**
*Hands-on training of field techniques such as sampling, data collection, observation and interpretation during field trips
*Classroom instruction
*Additional activities such as games, presentations by special speakers, community activities,

**Results**
UF/IFAS Environmental Education programs had 26,462 participants in 2009. 82.9 % of these participants showed an increase in knowledge, while 72.6% showed an increase in behavior. Below is an example of impacts from the Florida Master Naturalist Program:

*By 2009 four Master Naturalist Student graduates (Lee County Extension training) were employed in ecological service management in county and city agencies in Lee County, earning a collective estimated salary of $128,000 per annum. Two of these became employed when there was an employment freeze in the county, and candidates for the open positions were required to have highly specialized knowledge in Florida's habitat and ecology. Across Lee County, 18 FMNP graduates reported involvement as volunteers - tour guides, interpreters, clean-up organizers - in coastal, upland and wetland mitigation, management and education programs donating 16 hours each per month or a projected total of 3,456 hours of volunteer time in 2009. This represents a dollar value to Lee County (@$17.78/hr) of $61,447.68 but constitutes a significantly larger value in terms of the impact of education provided to students, residents, tourists and other nature seekers, and the pressure taken off county staff to tend to other matters.

*Graduates of these courses participate in 11 service projects to enhance natural resource systems and educational outreach. These projects include a bird inventory for the Jacksonville Arboretum, Tours for Tots an informative nature game booklet for children, an illustrated guide to endangered and protected birds of Northeast Florida, an invasive plant cabinet for the Museum of Science and History, plant identification deck that can be used by visitors to Jacksonville parks, a museum exhibit on the ecology and importance of alligator holes to freshwater wetlands. This exhibit at the Museum of Science and History will be viewed by over 200,000 visitors per year. Additionally, a display on garbage found in our coastal systems and how long each item takes to degrade, junior naturalist curriculum for K-3 students, an illustrated guide to plants and animals in coastal parks, ecotourism guide for Northeast Florida, and a bound book on edible plants found in coastal systems accompanied by recipes were also produced by graduates.

*The popularity of the Master Naturalist Program continues to grow in Northeast Florida. The participants gain a working knowledge of Florida ecology and then disseminate that information through various activities that they are involved with. This past year, they volunteered at schools, parks, and special events for a combined total of 1,455 volunteer hours with a value of $25,900.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 112 | Watershed Protection and Management |

**Outcome #10**

**1. Outcome Measures**

Improve agricultrual and environmental knowledge/skills

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 50 | 0 |

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

**Issue (Who cares and Why)**
Project Learning Tree, our flagship environmental education program, conducted a facilitator training program this year.

**What has been done**
Forty-seven people attended the training, 33 of whom were brand new facilitators.

**Results**
Five regional groups of facilitator teams developed workshop goals and committed to conducting 16 new workshops in 2010.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 605 | Natural Resource and Environmental Economics |

**Outcome #11**

**1. Outcome Measures**

Increase understanding of how Florida's natural resources ecosystems and how they respond to human activity

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 50 | 0 |

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

**Issue (Who cares and Why)**
Twelve teachers in a year-long school enrichment life skills program delivered 53 experiential lessons and taught 311 youth ages 5-12 years of age about vermiculture, pollinators, life cycles, simple and complex food web, and endangered species.

**What has been done**
Before the lessons, 39% of 22 youth knew that worms could compost their vegetable and paper waste into usable garden soil; 31% of 49 youth knew that bees, butterflies and other insects are necessary for our food production; 47% of 197 youth were able to demonstrate the skills necessary to operate a compound microscope

**Results**
After the lessons, 95% of 311 youth showed an increase in knowledge on pre/post assessments and 67% of 222 youth were able to utilize a compound microscope with an 88% proficiency.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 605 | Natural Resource and Environmental Economics |

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

**External factors which affected outcomes**

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

**Brief Explanation**

{No Data Entered}

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.

**Evaluation Results**

In this program area, "Maintain and Enhance Florida's Environment", 38,092 people were evaluated for change in knowledge and 88.5% or 33,705 said they increased their knowledge following an Extension Educational program. A total of 22,568 were surveyed for changes in behavior and 81.3% or 18,337 made positive behavioral changes. Over 14,398 were asked about broader changes to their community and 11,879 or 82.5% concluded that the changes they had made brought about broader social, environmental or economic changes in their communities.

**Key Items of Evaluation**

A number of extension activities were conducted in 2009 focused on providing stakeholders and county extension faculties with information about the importance of environmentally and economically viable nutrient management practices for successful forage and livestock production. Pre- and post-evaluations indicated that 100% of the participants of our extension efforts agreed that the information generated by these programs will impact their forage-livestock operations. Approximately 98% of the participants indicated that they will likely test their soil and will follow the IFAS fertilization recommendations. As an example of the impacts of our extension efforts, a large-scale producer in central Florida was able to reduce the fertilization costs by as much as 50% by omitting P fertilization and yet produce the same forage yield and quality. This represents approximately 3,000 acres of bahiagrass pastures that did not receive P fertilization. Besides the economic benefits, approximately 16 tons of P was not unnecessarily applied, which may also have contributed to protect the soil and water resources.

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

**Program # 3**

**1. Name of the Planned Program**

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

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

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---|---|---|---|---|---|
| 806 | Youth Development | 100% | 100% | 100% | |
| | **Total** | 100% | 100% | 100% | |

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

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

| Year: 2009 | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 80.0 | 2.0 | 0.0 | 0.0 |
| Actual | 91.2 | 3.0 | 0.0 | 0.0 |

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

| Extension | | Research | |
|---|---|---|---|
| **Smith-Lever 3b & 3c** | **1890 Extension** | **Hatch** | **Evans-Allen** |
| 923428 | 202035 | 0 | 0 |
| **1862 Matching** | **1890 Matching** | **1862 Matching** | **1890 Matching** |
| 923428 | 202035 | 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**

Adults
Families
Youth
County Government
Administrators of Social, Human Resource and Income Maintenance Programs
Administrators of Education

Florida Based Non-governmental Organizations
Non-Florida Based Non-governmental Organizations
County Faculty and Staff
Administrators
State Faculty and Staff

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

**1. Standard output measures**

| 2009 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---|---|---|---|---|
| **Plan** | 350000 | 5000000 | 230000 | 0 |
| **Actual** | 0 | 0 | 0 | 0 |

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

Year: 2009
Plan: 0
Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

| 2009 | Extension | Research | Total |
|---|---|---|---|
| **Plan** | 35 | 0 | |
| **Actual** | 35 | 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 | Improved competencies of Extension Faculty from inservice training |
| 2 | Improved procedures and techniques to increase volunteerism |
| 3 | Improved volunteer development procedures and techniques |
| 4 | Improved delivery of Extension programs |
| 5 | 4-H program demonstrate excellence in diversity |
| 6 | Improve agricultural and environmental knowledge/skills |
| 7 | Improve skills in animal sciences |
| 8 | Develop improved family and consumer skills |
| 9 | Develop healthy lifestyle choices |
| 10 | Develop science and technology skills |
| 11 | 4-H program demonstrate a safe and inclusive environment |
| 12 | 4-H delivery systems demonstrate quality and excellence |

## Outcome #1

### 1. Outcome Measures

Improved competencies of Extension Faculty from inservice training

Not Reporting on this Outcome Measure

## Outcome #2

### 1. Outcome Measures

Improved procedures and techniques to increase volunteerism

### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 100 | 17000 |

### 3c. Qualitative Outcome or Impact Statement

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

**What has been done**
This year, more than 240,000 Florida 4-H youth were engaged in the following 4-H projects: 133,280 science, engineering and technology projects; 135,213 civic engagement, community service and leadership projects; and 37,532 food, nutrition, health and personal safety projects. Projects are designed to build capacity in youth. These youth development experiences were guided by more than 17,000 Florida 4-H volunteers with each contributing an average of nearly 50 hours annually. Volunteers that provide opportunities for youth to experience 4-H create safe and inclusive environments and mentor youth in achieving their goals.

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

### 4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---|---|
| 806 | Youth Development |

**Outcome #3**

**1. Outcome Measures**

Improved volunteer development procedures and techniques

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 100 | 0 |

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

**Issue (Who cares and Why)**
As social and economic solutions become increasingly more difficult to find, the future will look to today's youth for answers. Who and what youth are involved with today is often an indicator of their future direction. Across the nation and in Florida, research has shown that youth involved in 4-H are 1.6 times more likely to enroll in college compared to youth enrolled in other out-of-school activities. This year, more than 240,000 Florida 4-H youth were engaged in the following 4-H projects: 133,280 science, engineering and technology projects; 135,213 civic engagement, community service and leadership projects; and 37,532 food, nutrition, health and personal safety projects. Projects designed to build capacity in youth.

**What has been done**
These youth development experiences were guided by more than 17,000 Florida 4-H volunteers with each contributing an average of nearly 50 hours annually. Volunteers that provide opportunities for youth to experience 4-H create safe and inclusive environments and mentor youth in achieving their goals.

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

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 806 | Youth Development |

## Outcome #4

### 1. Outcome Measures

Improved delivery of Extension programs

### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 50 | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
Research indicates that youth involvement in structured activities after school can be a productive use of time, and can positively impact academic achievement, self-esteem, civic engagement, and relationships with others.? (Cooper, Valentine, Nye, & Lindsay, 1999; Eccles & Barber, 1999; Youniss & Yates, 1997)
Florida 4-H annually educates over 240,000 youth enrolled in programs in all 67 counties, reaching youth ages 5 to 18 years of age. Programs include clubs, day camps, overnight camping programs, school enrichment, and after-school programs. The goal of organizational strategies and learning environments is to support youth programs through developing the structure that effectively manages staff and volunteers.
In order to insure that youth are 1. Physically and emotionally safe; 2. Develop and maintain positive relationships; 3. Develop a sense of belonging, in an inclusive environment; 4 develop personal competencies of self-reliance, independence, & autonomy; 5. Growing and contributing as active citizens through service and leadership; and 6. Developing marketable, productive skills and competencies for work and family life, organizational strategies must be developed. Strategies are the game plan management that an organization needs to conduct its operations to achieve its objectives (Thompson & Strickland, 2003)
In an increasingly complex and competitive market for resources, it is important that youth programs be organized for efficient and effective delivery of the overall program. This includes managing financial and human resources, utilizing appropriate educational materials, creating opportunities for youth experiences, and communicating effectively with youth. Additionally effective and efficient programs leverage resources and expertise with other youth organizations to maximize outcomes and community impacts. (Florida 4-H Logic Model)

**What has been done**
There were many different methods used including distance workshops, face to face lectures with hands on experience and mentoring sessions.

**Results**
As a result of providing club management training and Risk management training to 17 of the 4-H agents in Central District, they have over 80% of their clubs chartered and are providing risk management guidance to clubs planning events and activities. The number of phone calls and emails from agents reveals the fact they are conscience of the risks involved and are transferring correct information to their leaders. Agents are also training leaders on club management strategies that relates to more involved club members.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 806 | Youth Development |

**Outcome #5**

**1. Outcome Measures**

4-H program demonstrate excellence in diversity

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 50 | 0 |

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

**Issue (Who cares and Why)**
FAMU Cooperative Extension Program co-sponsored a 4-H Agriculture Adventures Day with the University of Florida Institute of Food and Agricultural Sciences (UF IFAS) on March 19, 2009 at the Cornerstone Learning Community, ?a private school with a public mission?. The program provides a better understanding of the importance of agriculture to the community and to improve the quality of life for all people.

**What has been done**
The goal was to enhance and maintain agricultural and food production systems with focus on providing activities to enhance Life Skills/Youth Development of middle school and elementary students of grades 3, 4, and 5.

**Results**
Pre/post-test prepared from the learning objectives that were previewed by the students before the activities showed that the middle school youth had an average pre-test score of 60% . The average post test score from the same youth was 85%. The average pre-test score for the fifth graders were 60% compared to 90% on the post test. The third grade average pre test score was 50% compared to a 75% average score on the post test. Both middle school and fifth graders had the same pre-test score followed by third graders. The result showed that for both middle school and third grade youth there was a 25% increase in pre-/post test scores and pre-/post test scores for fifth graders increased by 30%.
Overall the results from each grade level showed the youth increased their knowledge from 25 to 30% in the subject matters areas that made up each session with fifth graders having the greatest increase in scores.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 806 | Youth Development |

## Outcome #6

### 1. Outcome Measures

Improve agricultural and environmental knowledge/skills

### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 200 | 94058 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
University of Florida Extension 4-H Life Skills programs enrolled 133,280 youth in science, engineering and technology programs with 74,000 youth focused on biological, environmental and plant sciences; 135,213 youth were educated through participation in citizenship and civic engagement experiences and another 37,532 were engaged in healthy lifestyle educational programs during 2009-10 program year.

**What has been done**
Within these programs, 237 faculty devoted time to youth education and the development of youth life skills of: 1) decision-making, problem solving and self-responsibility; and 2) communication, leadership and workforce preparation, in addition to specific subject-matter knowledge or adopted practices.

**Results**
Faculty evaluated 94,058 youth (31% of 306,025 youth enrolled) for change in knowledge as a result of 4-H with 87.9% reporting change in knowledge; 52,423 evaluated for changes in behavior/practices with 76.7% reporting changes. 4-H educational programs often provide added benefits and life-changing impact to the more than 13,000 adult volunteers or classroom teachers.

### 4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---|---|
| 806 | Youth Development |

## Outcome #7

### 1. Outcome Measures

Improve skills in animal sciences

### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 200 | 0 |

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

**Issue (Who cares and Why)**
County fair livestock shows and exhibitions serve as the average Floridian's window into animal agriculture and the ideal medium to educate the public how American animal agriculture feeds the world.

**What has been done**
In 2009, agent judged eight county or regional livestock shows within the state of Florida where nearly 700 youth exhibited, and thousands of parents, volunteers, and tax payers served as spectators. Additionally, students of animal science program judged livestock at an additional 15-20 Florida fairs.

**Results**
In 2009, over 1,200 Florida youth participated in the livestock or meat education activities coordinated by agent including youth livestock and meat judging activities and the Hog and Ham program.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 806 | Youth Development |

**Outcome #8**

**1. Outcome Measures**

Develop improved family and consumer skills

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 200 | 0 |

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

**Issue (Who cares and Why)**
Teenage students often do not get a chance to learn the money management skills needed to make sound financial decisions later in life.

**What has been done**
Miami-Dade County's FCS and 4-H programs collaborated with Miami-Dade Public Schools of FCS department and the Clubs of Miami to conduct 6 hour "On My Own" finance programs, where student selected careers, learned how to write a check, and budget their money for a month in various family situations. The program includes a 2-hour true life simulation on money management.

**Results**
Three hundred students from A Middle School and the Boys & Girls Club, participated in the program; 100% of the students learned to write a check for the first time, 150 were able to budget their income for a month, and 90% (270) indicated on a survey that they learned how much money it takes to live, and run a household.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 806 | Youth Development |

**Outcome #9**

**1. Outcome Measures**

Develop healthy lifestyle choices

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 400 | 37532 |

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

**Issue (Who cares and Why)**

**What has been done**
37,532 were engaged in healthy lifestyle educational programs during 2009-10 program year.

**Results**
Learning through 4-H can affect children as well as adults involved in these programs. One classroom teacher engaged with a 4-H EFNEP nutrition and fitness program, gave up drinking sodas due to learning about the volume of sugar they contained, now six months later she has lost a much-needed 20 pounds.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 806 | Youth Development |

## Outcome #10

**1. Outcome Measures**

Develop science and technology skills

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 300 | 0 |

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

**Issue (Who cares and Why)**
The need to promote interest and achievement in science is particularly critical for Florida students. Science has recently been added to the list of subjects being tested annually by the Florida Department of Education's Florida Comprehensive Achievement Test (FCAT), and it is newly mandated that science be taught in grades K-8.

**What has been done**
Project Butterfly WINGS: Winning Investigative Network for Great Science is a collaborative project of the University of Florida's Florida Museum of Natural History and Institute of Food and Agricultural Sciences Extension that helps address this need. The primary goal of this program is to provide opportunities for environmental education and increase overall science and technology skills in school age youth. It works primarily with 4-H and county extension agents to provide the corresponding opportunities and deliver programs.

**Results**
National 4-H has accepted Project Butterfly WINGS as one of the new national Science, Engineering and Technology (SET) curriculum. The SET Program is the national priority of the 4-H Youth Development Program for the next five years. Designed to help strengthen the U.S. global competitiveness and leadership in science, engineering, and technology, 4-H SET activities currently reach 5.9 million youth with hands-on learning experiences that foster exploration, discovery, and passion for the sciences.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 806 | Youth Development |

## Outcome #11

### 1. Outcome Measures

4-H program demonstrate a safe and inclusive environment

### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 200 | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
After school programming often lacks the training and curriculum needed to combat teenage drug use, and teen social issues such as stress management.

**What has been done**
Miami-Dade County 4-H Extension taught trainers with the Youth CO-OP, City of Miami Gardens, South Florida Urban Ministries, and City of Doral Police Department using the Health Rocks curriculum. Health Rocks has been research proven to significantly assist youth in coping with the stress of peer pressure induced drug use.

**Results**
All 43 participants gave the training in the highest rating with regard to the relevance of the material and knowledge gained. Participants stated that the curriculum and training will play an essential role in the programming they implement for the 2009-2010 school year. As a result of training these trainers, 1,400 youth in Miami-Dade County will be impacted by the Health Rocks curriculum in their after school programs. By sharing the Health Rocks curriculum 4-H Extension has contributed to reducing youth crime and drug use

### 4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---|---|
| 806 | Youth Development |

## Outcome #12

### 1. Outcome Measures

4-H delivery systems demonstrate quality and excellence

### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 100 | 0 |

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

**Issue (Who cares and Why)**
The Volusia County 4-H Extension Agent organized a Mock Legislature event for District VIII at the Seminole County Extension Office.

**What has been done**
A Political Science professor attended and explained how the Florida Legislature operates as well as two State Representatives. Both answered questions and spoke about what motivated them to seek office, what bills they were working on, and more about how the Legislature operates.

**Results**
Thirty seven youth, from Lake, Orange, Osceola, Seminole and Volusia Counties attended. Seventy three percent (27 youth) completed the evaluation. Seventy four percent (20 youth) reported that they learned parliamentary procedures and how committees operate, 81% (22 youth) reported that they learned how a bill becomes a law and 85% (23 youth) reported that they learned about the roles of the Speaker, the Committee Chairs and the Clerk. When asked if this event would encourage them to attend State Legislature, 93% responded yes. By providing Intermediates with an emotionally safe environment, bills that were timely and interesting, and Seniors to guide them, the participants felt comfortable enough to speak in front of a group.

**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**

{No Data Entered}

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Comparison between locales where the program operates and sites without program intervention

**Evaluation Results**

University of Florida Extension 4-H Organizational Strategies programs reached 278,198 youth and was supported by 87 Faculty. Evaluations determined that 66% of youth surveyed indicated behavioral changes. Further, 8 faculty extended there programs in multi-state efforts. A total of 166,496 volunteer hours were given to this area. With a dollar value of $20.25 (Independent Sector 2010) per hour for volunteer time, this equals $3,371544.00 in-kind support, or 80 FTE's.
In this program area, "Developing Responsible and Productive Youth Through 4-H and Other Youth Programs", faculty reported that 114,077 people were evaluated for change in knowledge and 87.2% or 99,476 said they increased their knowledge following an Extension Educational program. A total of 61,723 were surveyed for changes in behavior and 76.5% or 47,244 made positive behavioral changes. Over 28,422 were asked about broader changes to their community and 19,434 or 68.4% concluded that the changes they had made brought about broader social, environmental or economic changes in their communities.

**Key Items of Evaluation**

University of Florida Extension 4-H Life Skills programs enrolled 133,280 youth in science, engineering and technology programs with 74,000 youth focused on biological, environmental and plant sciences; 135,213 youth were educated through participation in citizenship and civic engagement experiences and another 37,532 were engaged in healthy lifestyle educational programs during 2009-10 program year. Within these programs, 237 faculty devoted time to youth education and the development of youth life skills of: 1) decision-making, problem solving and self-responsibility; and 2) communication, leadership and workforce preparation, in addition to specific subject-matter knowledge or adopted practices. Faculty evaluated 94,058 youth (31% of 306,025 youth enrolled) for change in knowledge as a result of 4-H with 87.9% reporting change in knowledge; 52,423 evaluated for changes in behavior/practices with 76.7% reporting changes. 4-H educational programs often provide added benefits and life-changing impact to the more than 13,000 adult volunteers or classroom teachers as well, as documented by these testimonials:

· A former 4-H alumni who has achieved a high-level position within Gulf Power Corporation, and a recently completed Masters' degree, was named a "Rising Star" by the Pensacola News Journal, crediting the 4-H animal science program for much of their professional/personal achievements.

· An expanded 4-H Day at the Capitol program in 2009 provided one minority military volunteer their first opportunity to ever meet a state representative.

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

**Program # 4**

### 1. Name of the Planned Program

Create and Maintain Florida Friendly Landscapes: The Smart Way to Grow

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

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---|---|---|---|---|---|
| 101 | Appraisal of Soil Resources | 5% | 5% | 5% | |
| 102 | Soil, Plant, Water, Nutrient Relationships | 5% | 5% | 5% | |
| 112 | Watershed Protection and Management | 5% | 5% | 5% | |
| 133 | Pollution Prevention and Mitigation | 5% | 5% | 5% | |
| 201 | Plant Genome, Genetics, and Genetic Mechanisms | 5% | 5% | 5% | |
| 204 | Plant Product Quality and Utility (Preharvest) | 5% | 5% | 5% | |
| 205 | Plant Management Systems | 5% | 5% | 5% | |
| 206 | Basic Plant Biology | 5% | 5% | 5% | |
| 211 | Insects, Mites, and Other Arthropods Affecting Plants | 5% | 5% | 5% | |
| 212 | Pathogens and Nematodes Affecting Plants | 5% | 5% | 5% | |
| 213 | Weeds Affecting Plants | 5% | 5% | 5% | |
| 216 | Integrated Pest Management Systems | 5% | 5% | 5% | |
| 405 | Drainage and Irrigation Systems and Facilities | 5% | 5% | 5% | |
| 602 | Business Management, Finance, and Taxation | 5% | 5% | 5% | |
| 603 | Market Economics | 5% | 5% | 5% | |
| 604 | Marketing and Distribution Practices | 5% | 5% | 5% | |
| 608 | Community Resource Planning and Development | 5% | 5% | 5% | |
| 610 | Domestic Policy Analysis | 5% | 5% | 5% | |
| 723 | Hazards to Human Health and Safety | 5% | 5% | 5% | |
| 802 | Human Development and Family Well-Being | 5% | 5% | 5% | |
| | **Total** | 100% | 100% | 100% | |

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

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

| Year: 2009 | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 50.0 | 0.0 | 0.0 | 0.0 |
| Actual | 74.8 | 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** |
| 757667 | 0 | 0 | 0 |
| **1862 Matching** | **1890 Matching** | **1862 Matching** | **1890 Matching** |
| 757667 | 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

• 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

Homeowners
Adult Volunteers
Youth
Youth Volunteers
Administrators of Environmental Quality
County Government
Other Pubic Administrators
County Faculty and Staff
State Faculty and Staff
Individuals that own property or have established legal residency in the state of Florida.
Includes the executive, legislative, judicial, administrative and regulatory activities of Federal, State, local, and international governments.
Includes all personnel that are supervised by IFAS.
Hispanic speaking audience

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

### 1. Standard output measures

| 2009 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---|---|---|---|---|
| **Plan** | 5000000 | 6000000 | 0 | 0 |
| **Actual** | 0 | 0 | 0 | 0 |

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

**Patent Applications Submitted**

Year: 2009
Plan: 0
Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

| 2009 | Extension | Research | Total |
|---|---|---|---|
| Plan | 30 | 0 | |
| Actual | 30 | 0 | 46 |

**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 compliance with local, state and federal regulations |
| 2 | Improve procedures and techniques for managing business operations |
| 3 | Use of BMPs for managing Florida landscapes |
| 4 | Improve procedures and tehcniques for handling and using agricultrual chemicals, fuels, and other product |
| 5 | Improve delivery of Extension programs |
| 6 | Improve competencies of Extension faculty from inservice training |
| 7 | Improve agricultural and environmental knowledge/skills |
| 8 | Improve volunteer development procedures and techniques |

## Outcome #1

### 1. Outcome Measures

Improve compliance with local, state and federal regulations

### 2. Associated Institution Types

- 1862 Extension

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 50 | 0 |

### 3c. Qualitative Outcome or Impact Statement

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

**What has been done**
Short courses and workshops where onsite engagement is used to achieve conveyance of skills for achieving real-life solutions
Electronic delivery for self-study leading to increased knowledge gain

**Results**
The BMP program is an important means of reducing water and nutrient impacts of greenhouse production, where per-acre fertilizer application rates can be 10 to 20 times that of field production. Components of best management practices include monitoring to apply water and nutrients as needed by the crop and a combination of technologies, horticultural skills, and decision-making strategies to reduce runoff. Technologies related to water treatment are an important aspect of BMPs, because disease, algae, salts, and biofilm problems increase the risk of capture and reuse of irrigation water. The Water Education Alliance for Horticulture university/industry consortium was initiated in 2008 to develop educational programs and materials on water quality and treatment. The program funding and participation from companies expanded throughout 2009, with highlights being a successful workshop in Tampa in April 2009, and a webinar in August 2009 in collaboration with Texas A&M University.

### 4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---|---|
| 112 | Watershed Protection and Management |
| 405 | Drainage and Irrigation Systems and Facilities |

## Outcome #2

### 1. Outcome Measures

Improve procedures and techniques for managing business operations

### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 50 | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
In October of 2000, the Broward County Board of County Commissioners passed an ordinance that requires professional tree trimmers to obtain a license. The Commissioners voted to require proof of training in the form of certifications earned and directed staff at Broward County/UF-IFAS Extension Education to develop a tree trimming curriculum and administer exams to all who participate.

**What has been done**
Extension responded to this need by working with an advisory committee to develop an introductory tree trimming course that debuted in May of 2001. Classes were offered in English, Spanish and Creole.

Students who successfully pass the class receive a laminated certification card to carry on their person while they are working. This certification card is also required in order for them to obtain their required Broward County tree trimmer license.

**Results**
To date, the program has trained nearly 5000 tree trimmers how to properly prune trees for clearance, wind tolerance and canopy restoration by using best practices to maximize tree longevity and workplace safety. Moreover, the program is making a difference in the health of our local tree canopy. Of a random sample of 64 trained tree trimmers, 80% (51) demonstrated by pre- and post-tests that they increased their knowledge in the appropriate practices. Sixty-seven percent (43) described the classes they have taken as providing "much benefit", such as increased understanding of how to prune trees for storm tolerance, to their business operations. Many also stated that they are refraining from common improper practices of the past, such as hat-racking, flush cutting and over-pruning.

### 4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---|---|
| 602 | Business Management, Finance, and Taxation |
| 603 | Market Economics |

## Outcome #3

### 1. Outcome Measures

Use of BMPs for managing Florida landscapes

### 2. Associated Institution Types

- 1862 Extension

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 400 | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
The state of Florida has 19 million residents, 58 million annual visitors, a unique ecology and climate, and a wide range of plants grown year round. Florida has just over 5 million acres of lawns, many of which are close to water bodies. Many of Florida's residents lack knowledge of proper landscape care practices, often wasting water, fertilizer, pesticides, and energy through unsound landscape designs and maintenance practices. In the process, natural resources are squandered and the environment is degraded. Florida-Friendly Landscaping(tm) teaches residents to water efficiently, mulch, recycle yard waste, use the right plant in the right place, fertilize as needed, provide for wildlife, protect ground and surface waters, and minimize stormwater runoff. In 2009, the Florida Legislature found "that water conservation and water quality protection and restoration are increasingly critical to the continuance of an adequate water supply and healthy surface and groundwater" and that "Florida-Friendly Landscaping(tm)" as defined in s. 373.185 can contribute significantly to water conservation and water quality protection and restoration. The principal water quality impairments to be addressed by the project are excess nutrients (especially nitrogen) and pesticides in stormwater runoff from residential landscapes. The FFL Program has grown both geographically and by number of target audiences. The FFL principles are delivered to residents by County Extension Agents and Master Gardener volunteers. We currently have active Master Gardener programs in 58 of the 67 Florida counties.
Key Issues: increased urbanization, which has caused increased usage of irrigation water in landscapes, and increased nonpoint source pollution. Another issue is the largely non-Floridian audiences we communicate with and the cultural norms regarding unsustainable landscape practices and preferences.

**What has been done**
Print publications: FYN Handbook, FFL Design Guide and Plant List, brochures, calendars, folders, curricula, etc.
-Web-based curricula (online trainings and modules)
-Face-to-face workshops, seminars, and in-service trainings
-Demonstration gardens
-GI-BMP Program:
-Standardized live GI-BMP classes
-Online GI-BMP education
-DVD GI-BMP education
-Turf field days (commercial, MG, homeowner)
-Short courses (2-4 day certification classes for professionals)
-MG Program:

-Face-to-face and group lectures
-Online learning modules
-Streaming video

**Results**
50% of homeowners learned efficient irrigation techniques (adjusting irrigation timers, irrigation systems have separate High and Low Water Use Zones etc.)
-50% of homeowners cut their grass higher
-50% of MG's learned yard recognition criteria & process
-30% of homeowners will be using efficient irrigation techniques
-50% of FL yards will be recognized as Florida-Friendly
-25% reduction in irrigation water use by implementing FFL practices
FYN Builder & Developer Program
-6 PUD (planned unit development) builders & developers learned how to design efficient irrigation systems
-3 PUD builders & developers implemented efficient irrigation systems
-3 PUD's will use 30% less water than comparable subdivisions w/out efficient irrigation systems

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 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 |
| 405 | Drainage and Irrigation Systems and Facilities |

**Outcome #4**

**1. Outcome Measures**

Improve procedures and tehcniques for handling and using agricultrual chemicals, fuels, and other product

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 100 | 0 |

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

**Issue (Who cares and Why)**

Our landscape plant health care stakeholders need reliable Extension training that is based on the latest research and that will provide their companies with tools to improve human health, the environment, and/or the community by minimizing calendar-based pesticide applications and using a more targeted approach for managing key pests in urban landscapes.

**What has been done**
Assess the training needs of pest management professionals that would provide essential knowledge and skills to conduct reduced-risk pest management in the urban landscape.
2. Develop a basic, hands-on curriculum for pest management professionals that focuses on environmentally-responsible pest management.

**Results**
The Pest Management University (PMU) Basic Tree and Shrub Pest Management program on February 25, 2009 had 25 registered attendees from industry and 1 non-registered attendee from the University of Florida (UF). Twelve of the attendees returned the course evaluation forms. Eleven out of the 12 responded that they would attend another course offered by PMU. All 12 reported that they gained new knowledge that would help them on the job and all were positive about the quality of information they received. A second evaluation was used to determine the success of our training delivery methods.

For the Basic Turf Pest Management course, we had 25 registered attendees from industry and 1 registered attendee from UF. Twenty-three the 26 attendees returned the course evaluation forms, but not all of them answered every question. All responded that they would attend another course offered by PMU. Twenty-one out of 22 reported that they gained new knowledge that would help them on the job and all were positive about the quality of information they received.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 723 | Hazards to Human Health and Safety |

**Outcome #5**

**1. Outcome Measures**

Improve delivery of Extension programs

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 100 | 0 |

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

**Issue (Who cares and Why)**
UF Horticulture Department extension faculty and UCF Stormwater Management Academy researchers are working to identify preferences, attitudes, and barriers to adoption of sustainable residential landscapes.

**What has been done**
24 homeowners attended workshops to learn about sustainable design practices and participated in plant selection for their yard.

**Results**
Twelve sustainable, Florida-Friendly landscape designs were developed to replace their traditional landscapes. Six designs were installed in 2009 (with 6 more planned in 2010) and the homeowners are tracking their water use and wildlife occurrences for three years. The yards also serve as demonstration landscapes and case studies for preference and adoption surveys with other homeowners.

**4. Associated Knowledge Areas**

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

**Outcome #6**

**1. Outcome Measures**

Improve competencies of Extension faculty from inservice training

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 100 | 0 |

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

**Issue (Who cares and Why)**
Extension activities have continued in landscape irrigation and have led to rapid distribution of the potential water savings associated with soil moisture sensor (SMS) and evapotranspiration (ET) irrigation controllers.

**What has been done**
Smart Controllers have shown savings potential of 70-90% during normal rainfall periods on research plots and up to 40% during dry weather without compromising turfgrass quality. Studies on cooperating homes indicate 65% cumulative irrigation savings over two years.

**Results**
A total of 49 presentations were given to extension audiences at the local to regional level resulting in 1,474 group learning participants. This year six organized extension educational events were conducted in Florida including one in-service training for county faculty. We reached 257 individuals through these organized events. All individuals at these organized events specifically were tested to gauge knowledge change. Approximately 70% (180) of these tested individuals reported an increase in knowledge. As an ongoing effort, this increase in knowledge has led to a direct impact on implementation of these smart irrigation technologies within Florida landscapes.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 405 | Drainage and Irrigation Systems and Facilities |

**Outcome #7**

**1. Outcome Measures**

Improve agricultural and environmental knowledge/skills

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 100 | 5000 |

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

**Issue (Who cares and Why)**
Professional tree trimming workers lacked training in proper pruning techniques and safety practices. The lack of proper pruning technique resulted many urban trees having poor form, being more vulnerable to damage from high winds (hurricanes), and interfering with overhead utility lines. Lack of safety practices caused high rates of injuries, raising insurance premiums, and making services less affordable to the public.

**What has been done**
tree trimming educational curriculum was developed in consultation with an advisory board. The curriculum included an introductory class, and continuing education classes for Tree Biology and Hazard Assessment; Storm Preparedness and Recovery Pruning; and Tree Trimmer Safety. The classes were offered in English, Spanish and Creole. Students successfully passing the class received certifications cards, which enables them to obtain a tree trimmer license from the county.

**Results**
To-date, over 5000 tree trimmers have taken one or more classes. A random sample of 64 program trainees indicated that 80% increased knowledge of appropriate tree trimming practices, based on pre-test/post-test evaluations. Ninety five percent (95%) of participants indicated that the information gained through these classes has changed their trimming behavior, and substantially reduced the incidence of poor pruning practices such as flush cutting and over thinning. The top three knowledge benefits cited were a better understanding of ANSI A300 guidelines, increased understanding of trimming for storm tolerance, and increased knowledge of tree biology and hazard assessment. Also, 80% of participants indicated that they plan to conduct more routine equipment safety inspections and hold employee safety meetings, which is particularly important for operations with high hazard equipment such as bucket trucks and chain saws.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 112 | Watershed Protection and Management |

| | |
|---|---|
| 205 | Plant Management Systems |
| 603 | Market Economics |
| 723 | Hazards to Human Health and Safety |

**Outcome #8**

**1. Outcome Measures**

Improve volunteer development procedures and techniques

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 100 | 0 |

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

**Issue (Who cares and Why)**
By the end of the Landscape Design Program, 80% of the families will demonstrate the proper use of the FYN Florida Plant List in selecting the "right plant" for the "right place" in their landscape renderings by review of a Master Gardener Volunteer or the Extension Agent conducting the Program

**What has been done**
There were three, 4-day landscape design program events held in 2009.

**Results**
One class was 80% filled (20/25) and the remaining was overfilled (>25 families each program event) as the program was presented at various venues in the County. 72% (53/74 families) demonstrated the proper use of the FYN Florida Plant List. 53 families claim they will be implementing Florida Friendly Landscaping principles as they develop their new landscapes. They indicate that they will practice water conservation as a conscious decision in their landscapes by grouping plants based on water needs. They will reduce use of pesticides in the landscape by adding plants that are better adapted to the region in Orange County.

**4. Associated Knowledge Areas**

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

### 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 and Data Collection)

1. Evaluation Studies Planned

- Before-After (before and after program)
- During (during program)
- Case Study

**Evaluation Results**

In this program area, "Create and Maintain Florida Friendly Landscape: The Smart Way to Grow", Faculty reported 58,937 people were evaluated for change in knowledge and 90.7% or 53,446 said they increased their knowledge following an Extension Educational program. A total of 43,593 were surveyed for changes in behavior and 70.7% or 30,816 made positive behavioral changes. Over 18,270 were asked about broader changes to their community and 10,353 or 56.7% concluded that the changes they had made brought about broader social, environmental or economic changes in their communities.

**Key Items of Evaluation**

Professional tree trimming workers lacked training in proper pruning techniques and safety practices. The lack of proper pruning technique resulted many urban trees having poor form, being more vulnerable to damage from high winds (hurricanes), and interfering with overhead utility lines. Lack of safety practices caused high rates of injuries, raising insurance premiums, and making services less affordable to the public.

Improved tree trimming practices has broad social benefits in terms of enhanced environmental services of a healthy urban tree canopy, such as reduced utility bills, carbon sequestration, pollutant abatement, wildlife habitat, noise reduction, and community beautification. Improved structural pruning of urban trees will also enhance their wind tolerance, thereby reducing damages from hurricanes. Some of these benefits can be estimated in monetary terms using tools such as the Tree Benefit Calculator (http://www.treebenefits.com) developed by the Davey Tree Expert Company and Casey Trees. This tool enables estimation of values for dozens of the most popular ornamental trees (identified by common name), situated on properties that are single- or multi-family residential, small commercial businesses, industrial or large commercial businesses, and parks or vacant land, and located in a particular zip code area. For example, a 10 inch diameter Bald Cypress (Taxodium distichum) tree located near a single-family residence in the U.S. southeast coastal plain region is estimated to provide $53 annually in benefits, including enhanced property value ($35.24), stormwater runoff control ($7.15), electricity savings for reduced cooling requirments due to shade and evapotranspiration ($6.29), natural gas savings for heating due to reduced wintertime wind velocity ($1.41), carbon (CO2) uptake through photosynthesis ($1.52), and air quality improvement through pollutant and particulate removal ($1.24).

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

**Program # 5**

### 1. Name of the Planned Program

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

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

1. Program Knowledge Areas and Percentage

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

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

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

| Year: 2009 | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |

| | | | | |
|---|---|---|---|---|
| Plan | 84.0 | 1.0 | 0.0 | 0.0 |
| Actual | 68.4 | 3.0 | 0.0 | 0.0 |

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

| Extension | | Research | |
|---|---|---|---|
| **Smith-Lever 3b & 3c** | **1890 Extension** | **Hatch** | **Evans-Allen** |
| 693061 | 135095 | 0 | 0 |
| **1862 Matching** | **1890 Matching** | **1862 Matching** | **1890 Matching** |
| 693061 | 135095 | 0 | 0 |
| **1862 All Other** | **1890 All Other** | **1862 All Other** | **1890 All Other** |
| 0 | 0 | 0 | 0 |

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

### 1. Brief description of the Activity

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

### 2. Brief description of the target audience

Childcare Operations
Individual and Family Service Operations
Includes all for profit business or industries.
Individuals that own property or have established legal residency in the state of Florida.
Includes all personnel that are supervised by IFAS.
Finance, Insurance, and Real Estate Operations
Adults
Families
Youth
Administrators of Education
Administrators of Social, Human Resource and Income Maintenance Programs
Florida Based Non-governmental Organizations

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

### 1. Standard output measures

| 2009 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---|---|---|---|---|
| **Plan** | 700000 | 9000000 | 0 | 0 |
| **Actual** | 0 | 0 | 0 | 0 |

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

**Patent Applications Submitted**

Year: 2009

Plan: 0

Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

| 2009 | Extension | Research | Total |
|---|---|---|---|
| Plan | 35 | 0 | |
| Actual | 35 | 0 | 122 |

**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 competencies of Extension faculty from inservice training |
| 2 | improved delivery of Extension programs |
| 3 | Improved practices to strengthen individuals, couples, and families |
| 4 | Improved knowledge and skills of professionals who work with individuals, couples and families |
| 5 | Promote self reliance and independence |
| 6 | Encourage community diversity and harmony |
| 7 | Improve and enhance responsiveness to community |
| 8 | Enhance community engagement and awareness of resources |
| 9 | improved procedures and techniques to manage debt |
| 10 | improved procedures and techniques to manage assets |
| 11 | improved procedures and techniques to reduce fraud |
| 12 | Develop improved family and consumer skills |
| 13 | Improve nutrition and other lifestyle behaviors |
| 14 | Improved procedures and techniques for handling and preparing food |
| 15 | Improved management of food resources |
| 16 | Develop improved family and consumer skills |
| 17 | Improve procedures and techniques to improve home ownership |
| 18 | Improve procedures and techniques to maintain a healthy and safe home |

| | |
|---|---|
| 19 | Improve procedures and techniques to increas low-impact development (LID) |
| 20 | Improve compliance with local, state, and federal regulations |
| 21 | Improve construction and/or developmen/redevelopment procedures and techniques |

**Outcome #1**

**1. Outcome Measures**

Improve competencies of Extension faculty from inservice training

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
This year 2 of the programs developed have been well-utilized by county faculty. These programs include the Stressbuster Stress Management Program, and the Autism Spectrum Childcare Provider CEU program.

**What has been done**
Materials from the Stressbuster program have been adapted for use in several counties, and reportedly have been in high demand. The Autism Spectrum Childcare Provider CEU program has been implemented in at least 4 counties across the state.

**Results**
Data collected suggest that the Stressbuster program provides a reduction in stress symptoms and leads to positive behavior changes. The Autism Spectrum Childcare Provider CEU program has been implemented in at least 4 counties across the state. Data suggest the Autism Spectrum Childcare Provider CEU program leads to significant gain in knowledge about the autism spectrum for the vast majority of participants, and it has allowed for the receipt of CEU credits for many childcare providers. County faculty have reported that these programs are well-received and in high demand.

**4. Associated Knowledge Areas**

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

## Outcome #2

### 1. Outcome Measures

improved delivery of Extension programs

### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
Hurricanes are a stressful event to deal with in the Southeast United States.

**What has been done**
The 'Hurricane Survival Kid's Kit' was created to demonstrate how children can make their own kit of activities for during and after a hurricane.

**Results**
337 children, parents, and teachers participated in this exercise during Bay Days and the Mall Hurricane Expo. Many thought this 'Kit' was "pretty cool", "very useful", and "would help the kids stay occupied and feel helpful to their families".

### 4. Associated Knowledge Areas

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

## Outcome #3

### 1. Outcome Measures

Improved practices to strengthen individuals, couples, and families

### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 100 | 0 |

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

**Issue (Who cares and Why)**
A child's development, emotional health, self control and relationship with his/her parents is shaped by the parents' parenting styles.
Done

**What has been done**
16 parents learned about the four parenting styles - authoritative, permissive, neglecting and balanced, determined -which styles they use the most, and which styles work best with children and why.

**Results**
Survey results indicate that100 percent of the parents reported an increase in knowledge of their parenting styles. 100% identified the style (or styles) they use the most, 100% felt they had gained knowledge for incorporating the balanced parenting style in their home. In a follow-up survey, 50% of the parents felt they had improved their relationship with their child by making changes in their parenting style, while four parents (25%) felt they had made positive changes in the way they discipline their children. 100% of the participants reported an improved confidence in the way they react or respond to and discipline their children.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 801 | Individual and Family Resource Management |
| 802 | Human Development and Family Well-Being |

**Outcome #4**

**1. Outcome Measures**

Improved knowledge and skills of professionals who work with individuals, couples and families

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

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

**What has been done**
{No Data Entered}

**Results**
{No Data Entered}

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| {No Data} | null |

**Outcome #5**

**1. Outcome Measures**

Promote self reliance and independence

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
Of the 18 youth that originally started the independent living series, seven (39%) successfully completed the program.

**What has been done**
Students were asked to write on end of year evaluations three things they learned in the program.

**Results**
Statements included:
-I have learned how to manage money (4) ; I have learned how to apply for an interview for a job successfully (5); What a 401 K is; How to prioritize; How to work hard to achieve goals for the future; How to save money and put it away instead of spending it all (2); How to fill out a resume (2); How to use an ATM card; Don't spend more money than I have; Learned the difference between wants and needs (2);

**4. Associated Knowledge Areas**

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

**Outcome #6**

**1. Outcome Measures**

Encourage community diversity and harmony

Not Reporting on this Outcome Measure

**Outcome #7**

**1. Outcome Measures**

Improve and enhance responsiveness to community

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
Students who participated in required community service were 22 percentage points more likely to graduate from college than those that had not and had higher reading, math, history, and science score.

**What has been done**
A factor revealed from current research is that if youth are engaged in discussing their role in volunteer service they are more likely to continue on a regular basis and being asked to volunteer is their number one reason for doing so. As to the two organizations that young people tend to volunteer most--youth organizations or community civic groups. (Lopez and Marcelo, Center for Information and Research on Civic Learning and Engagement, 2007)

**Results**
This year 110 youth completed 4-H project records in Seminole County. 52% or 57 youth reported involvement in community service. They recorded 1,885.5 hours or an average of 33 hours of service/child. This is an 18% increase in the average number of hours/child from 2008.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 802 | Human Development and Family Well-Being |
| 805 | Community Institutions, Health, and Social Services |
| 806 | Youth Development |

**Outcome #8**

**1. Outcome Measures**

Enhance community engagement and awareness of resources

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
This year, 1,400 volunteers were enlisted county-wide to collect trash (16.1 tons this year, .1 more than last year) from the coast, rivers, lakes, and roadways.

**What has been done**
FCS agent promotes the event county-wide as well as coordinates the volunteers at one of 28 sites (up from only 13 last year) that consistently has the largest number of volunteers (429 = 30.5% of total and showing a 5% increase in participation over last year).

**Results**
The generosity of local merchants in sponsorship and cash donations is approx. $5,000/year and has remained about the same since the beginning of this event organized by FCS agent in Central Pasco 20 years ago.). Total volunteer support $43,436 shows enhanced civic engagement/community involvement. Not only do 75-80% of participants return each year, they bring additional family, friends and neighbors!

**4. Associated Knowledge Areas**

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

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

**Outcome #9**

**1. Outcome Measures**

improved procedures and techniques to manage debt

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 23300 |

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

**Issue (Who cares and Why)**
Florida?s economy along with the rest of the United States has been facing ?The Great Recession.? Florida?s unemployment rate is higher than the national rate and has unprecedented losses in housing values Several Florida cities? foreclosure and employment rates are among the worst in the country. Families were trying to maintain their households with fewer resources and rising costs. Home value losses and tightening of credit has limited many families? resources. Lack of access to credit has limited liquidity for families, which leads to late payments; missing payments, increase in cost of borrowing, and other negative financial outcomes.

**What has been done**
Web resources specifically the Managing in Tough Times-Downsized pages that provides resources and tools for persons whose income has been (or may be) reduced. This includes fact sheets, articulate presentations, worksheets, and on-line calculators. Social media sites were used to distribute information, including face book, Twitter, You Tube. Ten Money Matter$ videos were created and posted on You Tube, as well as 2 additional websites.
Group learning events: Over 300 classes have been taught on financial education topics that have reached over 5000 Floridians.
Displays, Exhibits were developed and utilized to create a culture of savings and financial responsibility management.

**Results**
Managing in Tough Times
Over 10,000 Managing in Tough Times ?flip books? were distributed to Floridians through classes and exhibits. The Managing in Tough Times: Downsized website was developed and provides resources and tools for persons whose income has been (or may be) reduced. This includes fact sheets, articulate presentations, worksheets, and on-line calculators.
Over 800 participants increased their knowledge in at least one or more key financial management areas (e.g. budgeting); over 500 increased their knowledge about savings. In specific response to the economic downturn, over 440 learned steps to improve their financial situation; 4015 were more confident in their ability to manage through the recession. All in all over 3180 people participated in financial education programs in 7 counties.

Florida Saves
Several counties contributed data to provide a picture of what is happening. Further evaluation is planned for 2010. Classes focused on basic money management and general resource management. In just a few counties there were almost 300 events for adults reaching over 3700 participants. When accounting for indirect methods of web, email, phone, and field visits, almost 7000 people were reached in just two counties. Youth also remain an important audience. In two counties over 12,600 youth were reached through classes and other events. Note that over 40 agents reported efforts in family financial education. Over 1100 volunteers were trained on the Money Smart program.
Other programs focused on banking the unbanked and encouraging people to take positive steps toward saving; such as Get Checking, and local Saves campaigns. In just one county, 199 people successfully completed the Get Checking program. These would be people who prior to this program were unbanked, spending their income on check cashing, money orders, and payday loans. In a similar vein, Florida Saves 2009 was extremely successful; 24 counties reported participating in the social marketing and outreach campaign. The Governor and Cabinet issued a proclamation naming the last week of February, Florida Saves Week. Over 900 Floridians reported an increase in knowledge about savings and strategies to improving savings. We documented 199 people set new savings goals. Floridians signed up en masse pledging to save in excess of $40,000 each month for the next 12 months.

**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 #10**

**1. Outcome Measures**

improved procedures and techniques to manage assets

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
Improved credit scores, reduce individuals costs associated with buying a home and interest rates and costs associated with other loans. Increased savings and reduced debt increase the likelihood individuals will be able to purchase a home and increase their purchasing power.

**What has been done**
Attending homeownership classes

**Results**
* 100% of 46 participants in the homeownership class developed a savings plan as evidenced by observation.
* 50% of 46 participants in the homeownership class reported acquiring a copy of their credit report as evidenced through observation.
* In 2009, 11 of the 46 participants of the homeownership class received down payment assistance. The homeownership class is required to receive down payment assistance.
* 22 of the 46 participants of homeownership classes returned completed surveys. 100% reported knowledge gain, 63% reported they would make changes based on what they learned. Some planned to improve their credit score, some planned to implement and/or improve their budget.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 801 | Individual and Family Resource Management |
| 802 | Human Development and Family Well-Being |

**Outcome #11**

**1. Outcome Measures**

improved procedures and techniques to reduce fraud

Not Reporting on this Outcome Measure

**Outcome #12**

**1. Outcome Measures**

Develop improved family and consumer skills

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**

{No Data Entered}

**What has been done**
{No Data Entered}

**Results**
{No Data Entered}

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| {No Data} | null |

**Outcome #13**

**1. Outcome Measures**

Improve nutrition and other lifestyle behaviors

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
Poverty rates in Florida continue to raise, with children, single minority women with families (racial and ethnic minorities), and older adults accounting for a substantial proportion of the population. U.S. Census estimates from 2008, indicate that 12.6% of individuals in the state, with 17.6% as children and 10% as adults over 65 years old. Family poverty estimates comprise over 9% of the state's population, with 34% of families headed by single females with no husband present. Florida's must vulnerable population faces increased risk of low food security and obesity, which is the precursor for many chronic diseases such as heart disease, hypertension, diabetes and some cancers. The vulnerability of this population is further confirmed by Gleason, Rangarajan, & Olson (2000), suggesting that many low-income adults lack the knowledge and skills to maintain food security and a healthy diet.

**What has been done**
The Family Nutrition Program (FNP) provides nutrition education to individuals and their families' eligible to receive SNAP benefits (formally known as food stamps), known as SNAP education (SNAP-Ed). The program provides nutrition education interventions to five different target populations in an effort to address the state's disparities. In the 2009 fiscal year, the FNP program provided 862,829 direct nutrition education interventions (as either single lesson or as a multi-lesson education series) in 33 counties to 153,937 adults and children eligible to receive SNAP benefits. In addition, the FNP program provided indirect nutrition education interventions reaching 100,000 SNAP

eligible adults and children through radio PSAs, 100,000 through TV PSAs, 870,689 through nutrition articles, 422 through billboards, bus wraps, and over sized signage, 97,468 through community health fairs, and 6,896 through other unique methods. Adult and youth participants reported increases in intent to change nutrition, physical activity, food resource management, and food safety behaviors. The following outlines specific outcomes from FY 09 programming efforts in their respective project areas

**Results**

Project Area 2: Pregnant Women/Teen and Families with Children
*47.5% increase in parents reporting an intent to eat more fruits and vegetables
*96% increase in parents reporting an increase in nutritional knowledge to increase fruit and vegetable intake, eat breakfast and reduce sugars and high fat foods
*3% increase in parents reporting an intent to be physically active every day
Project Area 3: Older Adult
*68% increase in elders reporting an intent to eat more fruits and vegetables
*84% increase in elders reporting an intent to consume recommended servings
*56% increase in elders reporting an increase in nutrition knowledge about topics such as dairy, eating smart, being active, nutritional values and food labels and proteins
*41% increase in elders reporting an intent to be physically active every day
*87% increase in elders reporting an intent to use non-emergency food assistance
*59% increase in elders reporting an intent to apply to the supplemental nutrition assistance program
*59% increase in elders reporting always having enough to eat
*57% increase in elders reporting an intent to use a menu plan
Project Area 4: General Adults
*Participants were 5 times more likely to report an intent to eat more fruits and vegetables
*Participants were 2.8 times more likely to report an intent to increase physical activity
*Participants were 21 times more likely to report an intent to consume recommended servings
*Participants were 4.5 times more likely to report an increase in nutrition knowledge

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 703 | Nutrition Education and Behavior |
| 806 | Youth Development |

**Outcome #14**

**1. Outcome Measures**

Improved procedures and techniques for handling and preparing food

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
Citrus growers, harvesters, packers and processors need employee Personal Hygiene and Food Safety training to fulfill internal standards, audit criteria, to ship their products to international overseas markets.

**What has been done**
St. Lucie County Extension collaborated with UF/IFAS/IRREC to provide Personal Hygiene for Citrus Produce Handlers (plus H1N1/ Seasonal Flu and WPS) workshops and programs to 59% of Indian River Citrus League member companies, training 3181 employees.

**Results**
2926 citrus produce workers were trained in proper personal hygiene and hand washing practices. 65% (1902) of the participants successfully washed their hands as measured by an interactive hand-washing activity. 1709 citrus worker participants increased their knowledge of potential of cross contamination and health conditions associated with improper hand washing and produce handling. 80% (1367) of participants were able to identify 4 likely ways to spread biological contaminants as demonstrated by an end of course survey.

### 4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---|---|
| 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 |

## Outcome #15

### 1. Outcome Measures

Improved management of food resources

### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
Based on research conducted at UVA, ISU, and Cornell University (2008) Cooperative Extensions, it is estimated for every $1.00 spent on EFNEP, the potential exists for $10.64 to be saved on future health care costs. In FY 09, $260,926 was spent on Leon County EFNEP. The potential exists for $2,776,252 to be saved on future health care costs in Leon County.

**What has been done**
The use of food resource management strategies led to the reduction of food costs for Leon County EFNEP families.

**Results**
The average reduction in food costs per family was $18.36 per month; which when extrapolated yielded an overall monthly savings of $21,132 and a yearly reduction in food costs of $253,588.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 701 | Nutrient Composition of Food |
| 703 | Nutrition Education and Behavior |
| 724 | Healthy Lifestyle |
| 801 | Individual and Family Resource Management |
| 802 | Human Development and Family Well-Being |

## Outcome #16

**1. Outcome Measures**

Develop improved family and consumer skills

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

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

**What has been done**
{No Data Entered}

**Results**
{No Data Entered}

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| {No Data} | null |

**Outcome #17**

**1. Outcome Measures**

Improve procedures and techniques to improve home ownership

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 2850 |

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

**Issue (Who cares and Why)**
Becoming a homeowner is one of the most important investments a family can make. Home ownership has many benefits. However, without sufficient preparation and proper financial management practices, home ownership cannot be obtained or maintained. According to a recent industrial report, during 2009, 5.9% of Florida homes were foreclosed which means one in every 17 housing units had foreclosure filings (national foreclosure rat in 2009: 2.2%). Sustainable homeownership became a major issue in Florida.
In 2009, one of the major Housing outreach education programs was a homeownership education program to help potential and current homeowners in Florida better prepare for and maintain their homeownership. Preparedness for homeownership includes making informed decision for housing choices that fits for a household?s situation, setting up a budget plan for long-term mortgage management, and finding manageable mortgage plans. Post-purchase education included home care, maintenance and remodeling as it was closely related to maintaining the property values and residents? health, proper management of their household budget, energy efficiency for sustainable living, and emergency planning.

**What has been done**
Educational Information was disseminated to the target audiences by using the following methods:
-Home ownership education workshop classes
-Newsletter: Research News You Can Use (RNYCU) -- FYCS newsletter
-Fact sheets
-In-service trainings
-Exhibits
-Websites
-Media (TV, radio, newspaper)

**Results**
In 2009, it was reported that 2,850 households participated in home ownership education programs. The outcomes and impacts as results of the programs included:

-Increased knowledge on home purchase process
-Increased knowledge on assessing a household?s situation to make a proper housing choices
-Successfully purchased existing homes or built new homes
-Made a decision to remain as renters for better preparation of homeownership
-Developed budget management plan to improve their household finance to obtain and maintain home ownership
-Adopted home care and maintenance practices to improve their home environment
-Adopted energy saving practices
-Intended for home mitigation and personal preparedness planning

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 801 | Individual and Family Resource Management |

**Outcome #18**

**1. Outcome Measures**

Improve procedures and techniques to maintain a healthy and safe home

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
The Orange County Saves: Eco-Nomic Living Expo won state, regional and national recognition for being an innovative program responding to emerging needs of families and communities.

**What has been done**
The Orange County Saves: Eco-Nomic Living Expo conducted a 6-month and a 12-month random survey of participants to determine behavior changes after the workshop.

**Results**
Two Year Success
175 attendees 2008
152 attendees 2009
88% Set the thermostat to 78 degrees or higher during the warm weather
75% Regularly changed their air conditioner filter
67% Used "green" cleaning products
67% Purchased an organic or locally produced food
63% Shut off irrigation system when it was raining
46% Installed a water saving device

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 723 | Hazards to Human Health and Safety |
| 724 | Healthy Lifestyle |

**Outcome #19**

**1. Outcome Measures**

Improve procedures and techniques to increas low-impact development (LID)

Not Reporting on this Outcome Measure

**Outcome #20**

**1. Outcome Measures**

Improve compliance with local, state, and federal regulations

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
Local and state criteria for child care provider education is increasing, requiring more providers to seek CDA certification, an associates' or bachelor's degree, depending on their current class assignment and aspirations. Non-credit classes through Extension are most economical, though may be sought less in years to come based on market demands.

**What has been done**
Fifteen classes were offered to 570 childcare providers, offering them 3.0 CEUs (30 hours) from the University of Florida. These CEUs are valuable for recertification of the Child Development Associate (CDA) credential.

**Results**

Using pre- and post-tests for each of the three sessions, 98% showed an increase in knowledge

**4. Associated Knowledge Areas**

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

**Outcome #21**

**1. Outcome Measures**

Improve construction and/or developmen/redevelopment procedures and techniques

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
The value of mitigation education is something that is measured in the future. Disasters have adverse consequences on the social and economic wellbeing of a community. Damage and conditions after a disaster can overwhelm government and community.

**What has been done**
Hundreds of residents are better prepared for future storms with the knowledge and skills necessary to make informed decisions about surviving wind events, including personal preparedness planning, retrofitting property to withstand hurricane winds and reducing potential building and property damage.

**Results**
270 of 355 (76%) of homeowner workshop participants increased their knowledge of windstorm damage mitigation for their home and personal safety as indicated by an end of course survey.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 608 | Community Resource Planning and Development |

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

**External factors which affected outcomes**

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

**Brief Explanation**

{No Data Entered}

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Comparison between locales where the program operates and sites without program intervention

**Evaluation Results**

In this program area, "Promote Individual, Family, and Community Well-being and Economic Security", faculty reported that 110,961 people were evaluated for change in knowledge and 82.6% or 91,605 said they increased their knowledge following an Extension Educational program. A total of 111,162 were surveyed for changes in behavior and 81.4% or 90,505 made positive behavioral changes. Over 18,213 were asked about broader changes to their community and 9,778 or 53.7% concluded that the changes they had made brought about broader social, environmental or economic changes in their communities.

**Key Items of Evaluation**

Improving lifestyle behaviors and health parameters such as blood pressure and A1C concentrations has the potential to significantly reduce the cost burden of type 2 diabetes. By helping Floridians with type 2 diabetes better manage their disease and improve their glycemic control, University of Florida IFAS Extension and our partners are making a significant contribution to the health of Floridians with diabetes, as well as reducing health care costs to individuals, the state, and the Federal government.

University of Florida Extension also provides train-the-trainer workshops on an annual basis with funding provided by the Florida Department of Health. These workshops expand the impact of TCYD beyond the reach of Extension educators into the broader health community in Florida. Although outcomes of the TCYD programs conducted by health professionals who were trained by Extension have not been evaluated, the potential for further improvements in diabetes control and associated reductions in morbidity and health care costs are substantial.

Through faculty at the Marion County Extension office, TCYD came to the attention of the Antigua

Ministry of Health. They invited a team from the University of Florida to provide diabetes self-management education training for health professionals on the island and the training was designed and planned by University of Florida faculty in 2009. In January 2010, Linda Bobroff (Department of Family, Youth and Community Sciences), Nancy Gal (Marion County Extension), Paul Doering (UF College of Pharmacy), Nan Jensen (Pinellas County Extension), and Trina Thompson (Florida Dept of Health), traveled to Antigua to present three days of training to 30 health professionals on TCYD and current diabetes research. The Ministry of Health has followed up by planning the implementation of TCYD to address the critical need for diabetes self-management education in their country.

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

**Program # 6**

### 1. Name of the Planned Program

Healthy Communities

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

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---|---|---|---|---|---|
| 603 | Market Economics | 5% | 5% | 0% | |
| 605 | Natural Resource and Environmental Economics | 10% | 10% | 0% | |
| 607 | Consumer Economics | 5% | 5% | 0% | |
| 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 | 5% | 5% | 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 | 5% | 5% | 0% | |
| 806 | Youth Development | 5% | 5% | 0% | |
| 902 | Administration of Projects and Programs | 5% | 5% | 0% | |
| 903 | Communication, Education, and Information Delivery | 10% | 10% | 0% | |
| | **Total** | 100% | 100% | 0% | |

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

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

| Year: 2009 | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 3.0 | 0.5 | 0.0 | 0.0 |
| Actual | 10.0 | 2.0 | 0.0 | 0.0 |

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

| Extension | | Research | |
|---|---|---|---|
| **Smith-Lever 3b & 3c** | **1890 Extension** | **Hatch** | **Evans-Allen** |
| 100946 | 134690 | 0 | 0 |
| **1862 Matching** | **1890 Matching** | **1862 Matching** | **1890 Matching** |
| 100946 | 134690 | 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

Improved delivery of Extension programs
Improved competencies of Extension faculty from in-service training
Improved procedures and techniques to retain and expand businesses
Improved business environment
Improved business management practices
Improved procedures and techniques for managing population growth
Improved procedures and techniques to reslove conflict
Florida citizens participate more fully and effectively in the decision making that affect their communities
Improving planning for disasters

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

### 1. Standard output measures

| 2009 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---|---|---|---|---|
| **Plan** | 42000 | 2800000 | 0 | 0 |
| **Actual** | 0 | 0 | 0 | 0 |

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

**Patent Applications Submitted**

Year: 2009
Plan: 0
Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

| 2009 | Extension | Research | Total |
|---|---|---|---|

| | | | |
|---|---|---|---|
| **Plan** | 6 | 0 | |
| **Actual** | 6 | 0 | 4 |

**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 delivery of Extension programs |
| 2 | Florida citizens participate more fully and effectively in the decision making that affect their communities |
| 3 | Improve procedures and techniques to resolve conflict |
| 4 | Improve competencies of Extension faculty from in-service training |
| 5 | Improved procedures and techniques to retain and expand businesses |
| 6 | Improved business environment |
| 7 | improved business management practices |

## Outcome #1

### 1. Outcome Measures

Improve delivery of Extension programs

### 2. Associated Institution Types

- 1862 Extension

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
Increased opportunities for imparting nutrition and family economic information was provided at local food pantries. A church garden was established to provide food pantries with fresh vegetables. Transportation of vegetables was coordinated to optimize availability in the County. Feeding Wakulla Task force was established.

**What has been done**
As a result of the communication network and program efforts of the Extension Agent(s) in 2009, a community assessment for feeding those in need was completed through a series meetings and workshops. A new resource directory for those in need was initiated (in press)

**Results**
* 94 Additional families received assistance from Wakulla County food pantries in July 2009 than the previous year.
* Vegetables valued at $2,750 were produced and transported from church garden to food pantry recipients.
* Food Pantries are providing healthier food and nutrition information to those in need.

### 4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---|---|
| 724 | Healthy Lifestyle |
| 805 | Community Institutions, Health, and Social Services |

## Outcome #2

### 1. Outcome Measures

Florida citizens participate more fully and effectively in the decision making that affect their communities

### 2. Associated Institution Types

- 1862 Extension

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
The city was approached by agent with the idea of a weekly market that would be a community event and a source of local foods for the citizens of Sumter County.

**What has been done**
A market board was formed, rules and vision developed to maintain the local food focus of the market, and a market manager hired. A survey was provided to the vendors after the fifth week of the Saturday markets.

**Results**
The Market opened in October 2009 and currently averages 40 vendors and hundreds of shoppers each week and has been able to support local produce farmers, goat milk producers, artisans and community fund raising groups. Overall, 50% of the vendors responding either started their business just for the market or have been able to expand.

### 4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---|---|
| 805 | Community Institutions, Health, and Social Services |

## Outcome #3

### 1. Outcome Measures

Improve procedures and techniques to resolve conflict

Not Reporting on this Outcome Measure

## Outcome #4

### 1. Outcome Measures

Improve competencies of Extension faculty from in-service training

Not Reporting on this Outcome Measure

## Outcome #5

### 1. Outcome Measures

Improved procedures and techniques to retain and expand businesses

### 2. Associated Institution Types

- 1890 Extension

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
Communities, especially rural communities need to develop resource development programs that can add to the tax base and the infrastructure of the community. FAMU Extension has active programs in this area

**What has been done**
FAMU Cooperative Extension Outreach Program?s Community Resource Development Program area worked to secure $660,000.00 in funding for community/school based garden e education. The initial community development outcomes include the following: 1) Three new garden sites; 2) Participation of County Public Works and Recreation Departments in providing human capital and equipment and a water line for irrigation, respectively. 3) A new partnership developed with the Riley House. The Riley House is a historical and cultural landmark that sits at the bottom of a hill in downtown Tallahassee, at the corner of Meridian and Jefferson Streets. The John G. Riley historic home represents the thriving black neighborhood that once existed in what is just east of downtown Tallahassee.

**Results**
The Riley House is especially significant when compared to other such historical sites in that it is the last vestige of the accomplishments of an entire group of people, the black middle class, which emerged in the latter part of the nineteenth century. Mrs. Barnes, the executive director, of the Center requested the Project?s assistance in cultivating a plot of land to duplicate the small garden Mr. Riley cultivated on the home site. The agreement is to include elementary kids in the cultivating and maintenance of the garden.
External funds secured by CRD brought new jobs to rural communities: 1) $660,000.00 five year award resulted in the hiring of five local individuals (Project Coordinator, Evaluator, 3 Site Coordinators); 2) $249,000.00 three year award was secured with the help of CRD technical assistance benefiting youth interested in agriculture entrepreneurship; and 3) $5,000.00 four month Southern Regional Asset Building Coalition grant from the Ford Foundation was secured jointly between CRD and the Marketing Program areas to benefit youth financial literacy

programming.
CRD?s success also included $380,000.00 in contracts and grants secured by a private enterprise and a tax-exempt organization as a result of education and technical assistance received through the Community Resource Development program area.

**4. Associated Knowledge Areas**

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

**Outcome #6**

**1. Outcome Measures**

Improved business environment

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
As growth in Florida continues at a relatively fast pace, it is imperative to provide information and resources to improve understanding of available sustainable development and management practices among both developers and homeowners and to increase adoption and implementation of such practices.

**What has been done**
Direct consultations with developers; Development and local implementation of homeowner environmental education program; Sustainable design and management consultations with housing developments.

**Results**
1.Developers adopt specific language in their design and management planning documents for the community. For example, three residential developments have adopted a cluster design and conserved open space.
2.Developers have adopted specific management practices and homeowner engagement activities, including an environmental education program for homeowners.
3.Nine developments have each adopted at least one recommended sustainable design and management practice (these developments represent a total of 17,488 homes), and one county has required EnergyStar certification for all new homes in the county.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 608 | Community Resource Planning and Development |
| 803 | Sociological and Technological Change Affecting Individuals, Families, and Communities |

## Outcome #7

**1. Outcome Measures**

improved business management practices

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
As energy costs came to the forefront of national and local economies. Affecting production and transportation of goods and services, this goal team took a focus pertaining to development of, and education for, currently available alternative and renewable energy technologies that could have an impact on small farms and residents in the rural and urban areas.

**What has been done**
1. Held two renewable Energy workshops at the UF/IFAS Suwannee Valley Research and Education Center.
2. Worked with the Renewable Energy RC&D Council in Alachua acquiring a used wood gasification reactor for demonstration purposes.
3. With the help of community volunteers and additional donations of equipment and money a wood gasification demonstration was held 5/9/09 in Perry showing that and engine can run off wood gas.
4. Provided education for local county interests in USDA Renewable Energy and Efficiency Program and Energy Audit requirements to participate in the program.
5. Developed two state wide renewable Energy in- Service Training Proposals for Extension faculty in (2008 and 2009)
6, Submitted funding requests to SARE and the State of Florida's Energy Office for renewable energy demonstration projects.
7 Received Energy Training from ATTRA/NCAT in North Carolina serving the state as an extension Energy Educator upon completion of the training.
8. Developed web based educational site (Solutions for Your Life) for renewable Energy topics, mostly related to wood gasification topics. http://taylor.ifas.ufl.edu - renewable energy.

**Results**

1.Fifty regional small farm interests received education pertaining to renewable energy technologies including making biodiesel from used vegetable oil, solar technologies applicable to the small farm, biomass crops for renewable fuel (ethanol), state and regional energy policies affecting adoption of RSP in Southern States.
2.Received 471K funding from the State Energy Office for gasification of Poultry waster for on farm heat and power production demonstration project.
3.Renewable Energy Publication down load from the Taylor County website is running 2000-3000 per week for the past 12 months.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 603 | Market Economics |
| 605 | Natural Resource and Environmental Economics |
| 607 | Consumer Economics |
| 903 | Communication, Education, and Information Delivery |

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

**External factors which affected outcomes**

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

**Brief Explanation**

{No Data Entered}

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Comparison between locales where the program operates and sites without program intervention

**Evaluation Results**

This program area, "Healthy Communities" is undergoing changes. In some cases communities is reported under several of the other goals and so changes have been made over the past year to make this program area more clear for reporting purposes. For 2009 faculty reported that 1,895 people were evaluated for change in knowledge and 86.6% or 1,641 said they increased their knowledge following an Extension Educational program. A total of 1,019 were surveyed for changes in behavior and 66.3% or 676 made positive behavioral changes. Over 858 were asked about broader changes to their community and 764 or 89.0% concluded that the changes they had made brought about broader social, environmental or economic changes in their communities.

**Key Items of Evaluation**

FAMU accomplishments in the area of healthy communities is commendable. They shine in the following activities and results:

Alternative Crop Enterprises to Improve the Livelihood of Small-Scale Minority Farmers: Production, Value Addition and Marketing had several successes:

§ **Market identification, training and transportation logistics**: Retail grocery stores, mostly independent grocery stores in four states (FL, GA, AL & MS) were identified to provide market outlets for participating farmers. Examples of stores that have started buying produce from participating farmers include Piggly Wiggly, IGA, and Save-A-Lot.

§ School markets were identified in three south Florida counties.

§ Trained participants for school food service personnel in procurement, storage and preparation of fresh agricultural produce.

**Project Outcomes (Impacts):**

**1. Improvements in Marketing, transportation Logistics and increased output:** Approximately 50 retail grocery stores (mostly new markets) were established in the four states mentioned above.

- Approximately 200 dozens of leafy greens are now being marketed for participating farmers on a weekly basis.
- Fresh produce mostly collard greens and green beans are delivered directly to stores (1-2 deliveries per week).
- 20 participants have been trained in harvesting, post-harvest handling/processing and value addition techniques.
- Two (2) participants are now fully qualified to assist fellow participants in storage, and distribution activities.

**2. An increase in the number of demonstration sites.**

- We now have 4 new demonstration sites to assist current and potential participants (one control site at our outreach facility and 3 on-farm sites for application and training purposes). Prior to this, there were zero demonstration sites.

**3. A visible change in attitudes**

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

Providing Socially Disadvantaged Minority Farmers with Technical Training to Produce, add value and Market Alternative/Specialty Crops.

**Project Outputs (activities) and Outcomes (Impacts)**:

**Project Outputs:**

• **Expansion of clientele:** We have added the following counties in order to serve a wider audience: Jackson, Escambia, Washington, Gadsden, Leon, Manatee, Sarasota and Charlotte.

• **Development of information resources for continuing outreach activities and information dissemination:** Informational resources (Websites, printed hand-outs, PowerPoint presentations, on-farm demonstrations & hands-on training/assistance have been developed and are being utilized for training & outreach purposes:

Seventy five (75) new participants (including 40 youth) have been trained in hands-on in production, value-added processing, market development and distribution techniques.

Ten (10) youth have started agricultural business ventures (production, value-added processing and marketing)

An increase in farm output and profits over previous years**.** Approximately 300 dozen of collards are now being produced per acre. At a market price of $10/dozen, individual farmers are realizing earnings of $2,500 per acre.

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

**Program # 7**

### 1. Name of the Planned Program

Promoting professional development activities designed to enhance organizational efficiency and effectiveness

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

1. Program Knowledge Areas and Percentage

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

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

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

| Year: 2009 | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 8.0 | 0.0 | 0.0 | 0.0 |
| Actual | 32.5 | 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** |
| 329009 | 0 | 0 | 0 |
| **1862 Matching** | **1890 Matching** | **1862 Matching** | **1890 Matching** |
| 329009 | 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**

• 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**

Administrators
County Faculty and Staff

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

**1. Standard output measures**

| 2009 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---|---|---|---|---|
| **Plan** | 64000 | 2500000 | 0 | 0 |
| **Actual** | 0 | 0 | 0 | 0 |

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

Year: 2009
Plan: 0
Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

| 2009 | Extension | Research | Total |
|---|---|---|---|
| **Plan** | 15 | 0 | |
| **Actual** | 15 | 0 | 7 |

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

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

## V. State Defined Outcomes Table of Content

| O. No. | OUTCOME NAME |
|---|---|
| 1 | Improved delivery of Extension programs |
| 2 | Improved procedures and techniques to evaluate Extension programs |
| 3 | Improved faculty and staff satisfaction |
| 4 | Improved competencies of Extension faculty and staff through inservice training and other professional learning opportunities |

## Outcome #1

### 1. Outcome Measures

Improved delivery of Extension programs

### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

### 3a. Outcome Type:

Change in Action Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 142 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
Off campus faculty and staff have limited access to Internet Security training. As a result, UF-owned computers are at risk from a variety of threats including viruses, worms, Trojans, botnets, phishing and more. Once a computer is infected it can easily infect others. Infected computers may require significant resources to sanitize, resources that could be used more productively.

**What has been done**
The primary method used to deliver this program has been as a workshop. Many handouts are used as are real-life examples from both the instructor and very often, from the participants themselves. An online version of this program is currently being planned. Objectives include:
Raise awareness of existing Internet threats including viruses, worms, Trojans, phishing and botnets.
Introduce Internet Security Best Practices
Introduce the concept of ?layered security? and describe both the 4-layer and the 7-layer approach.
Explain the various types of security software and products that make up each layer of security
Explain how to use these tools in an integrated fashion.
List and describe 4 different methods of backing up data.
List and explain two secure browsing options
List and describe 4 sources of help should problems occur

**Results**
Several times after a class, the instructor learned of participants who downloaded one of more of the free security tools mentioned in class, scanned their computer for problems and found and removed various forms of malware. Post-workshop surveys taken immediate after the workshop indicate that much of the information presented was new to a majority (93%) of the attendees. 48 % of those responding to a survey 30 to 60 days after the class indicated they had improved their Internet security by regularly using least 2 new Best Practices. 37% of the attendees also indicated they had begun using at least one new security software application as suggested in class.
This program was initiated in November of 2009, and presented 5 times to 142 attendees. The class has proven extremely popular. Many more classes will take place in 2010.
Billions of dollars are spent annually to protect computers from malware ? viruses, Trojans, worms, etc. More billions are lost to theft and fraud not to mention the cost of repairs, lost productivity and missed business

opportunities. Yet there is no end in sight. Malware is created by organized, sophisticated and well-funded criminal gangs. Their goal is to take your money and they?ve found an endless variety of ways to reach that goal.

While the majority of faculty and staff of the University of Florida are well protected from within the secure UF network, a large number of faculty and staff that work off-campus in the county Extension offices are relatively unprotected. They also have limited access to Internet security training. An Internet Security Workshop was developed to help reduce the threat for these at-risk users. Post-workshop surveys taken immediate after the workshop indicate that much of the information presented was new to a majority (93%) of the attendees. In response to a follow up survey 30 to 60 days later, 48 % of those responding indicated they had improved their Internet security by regularly using least 2 new Best Practices. 37% of the attendees also indicated they had begun using at least one new security software application as suggested in class.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 903 | Communication, Education, and Information Delivery |

**Outcome #2**

**1. Outcome Measures**

Improved procedures and techniques to evaluate Extension programs

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
Ask Extension - Pinellas County Extension's FAQs (2009)
With staff reductions and the need to reach existing and new clientele in a more efficient way, a program called Ask Extension was developed.

**What has been done**
A software product, Interspire Knowledge Manager, was purchased and installed to allow Pinellas County Extension the ability to share educational information with clientele on the website. This allows clientele to get immediate answers to their frequently asked questions in the knowledge base, while also having access to research based fact sheets and multi-media presentations

**Results**

Extension intends to produce the following outcomes by implementing this educational program: reduction the in-bound need for clientele support on the phones and in person; ability to share our research based information to clientele in a fast and efficient manner; and improve staff productivity. In the one month that the program has been live on the website, 715 clients have utilized it for their frequently asked questions.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 604 | Marketing and Distribution Practices |
| 903 | Communication, Education, and Information Delivery |

**Outcome #3**

**1. Outcome Measures**

Improved faculty and staff satisfaction

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
Quality customer service is vital to the reputation of Manatee County Government and the Manatee County Extension Service, since volunteers are often the first person an Extension client will meet.

**What has been done**
Volunteers participated in Quality Customer Service workshops

**Results**
Of the 189 Manatee County employees and Extension volunteers who participated in Quality Customer Service workshops in 2009, 151 were given pre/post tests to assess their knowledge of the principles of quality customer service. The results showed that 94% of participants learned the importance of a good first impression; 89% learned proper telephone courtesy; 97% learned how to deal with irate customers; and 94% learned active listening skills.

**4. Associated Knowledge Areas**

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

## Outcome #4

### 1. Outcome Measures

Improved competencies of Extension faculty and staff through inservice training and other professional learning opportunities

### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
Agent turnover in Cooperative Extension nationally is both monetarily expensive and an inefficient use of time management (Ensle, 2005). It was crucial that the Florida Association of Extension 4-H Agents provide support and training for new 4-H agents.

**What has been done**
Based on a 12 month review of resignations, retirements, and newly hired county and district faculty 4-H faculty comprise 28% of the incoming work force. In the same 12 months, 4-H faculty made up 34% of the faculty who are leaving through resignation or retirement.

**Results**
As a result of attending the "Keeping the Good Ones" in-service training offered by the Florida Association of Extension 4-H Agents,100% of the eight participants showed knowledge gained as evidenced by a retrospective pre-post evaluation. All participants indicated their satisfaction with the overall quality of the training and they feel more comfortable in their roles as new 4-H agents as a result of the training.

### 4. Associated Knowledge Areas

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

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

**External factors which affected outcomes**

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

**Brief Explanation**

{No Data Entered}

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

1. Evaluation Studies Planned

- After Only (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study

**Evaluation Results**

In this program area, "Promoting professional development activities designed to enhance organizational efficiency and effectiveness", faculty reported that 5,254 people were evaluated for change in knowledge and 94.5% or 4,964 said they increased their knowledge following an Extension Educational program. A total of 3,029 were surveyed for changes in behavior and 56.4% or 1,709 made positive behavioral changes. Over 1,653 were asked about broader changes to their community and 1,034 or 62.6% concluded that the changes they had made brought about broader social, environmental or economic changes in their communities.

**Key Items of Evaluation**

The voluntary loss of faculty costs Extension millions of dollars across the country on a yearly basis. Florida Extension completed a study of competencies required by new faculty that lead to job retention and job satisfaction. The information was used to create a guidebook for new faculty that provides a checklist that is linked directly to training materials. The checklist is designed around what needs to be taught and at what point of their training during the first three years. This information is located on line at http://pdec.ifas.ufl.edu/new_faculty/guidebook.pdf.

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

**Program # 8**

### 1. Name of the Planned Program

Natural Resources and Environment--research

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

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---|---|---|---|---|---|
| 101 | Appraisal of Soil Resources | 0% | 0% | 10% | |
| 102 | Soil, Plant, Water, Nutrient Relationships | 0% | 0% | 10% | |
| 111 | Conservation and Efficient Use of Water | 0% | 0% | 10% | |
| 121 | Management of Range Resources | 0% | 0% | 10% | |
| 122 | Management and Control of Forest and Range Fires | 0% | 0% | 5% | |
| 123 | Management and Sustainability of Forest Resources | 0% | 0% | 5% | |
| 124 | Urban Forestry | 0% | 0% | 5% | |
| 125 | Agroforestry | 0% | 0% | 5% | |
| 131 | Alternative Uses of Land | 0% | 0% | 5% | |
| 132 | Weather and Climate | 0% | 0% | 5% | |
| 133 | Pollution Prevention and Mitigation | 0% | 0% | 5% | |
| 134 | Outdoor Recreation | 0% | 0% | 5% | |
| 135 | Aquatic and Terrestrial Wildlife | 0% | 0% | 10% | |
| 136 | Conservation of Biological Diversity | 0% | 0% | 5% | |
| 141 | Air Resource Protection and Management | 0% | 0% | 5% | |
| | **Total** | 0% | 0% | 100% | |

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

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

| Year: 2009 | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 0.0 | 0.0 | 61.0 | 0.0 |
| Actual | 0.0 | 0.0 | 21.8 | 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 | 663030 | 0 |
| **1862 Matching** | **1890 Matching** | **1862 Matching** | **1890 Matching** |
| 0 | 0 | 663030 | 0 |
| **1862 All Other** | **1890 All Other** | **1862 All Other** | **1890 All Other** |
| 0 | 0 | 663030 | 0 |

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

### 1. Brief description of the Activity

- Conduct Research Experiments
- Construct Research Facilities
- Partnering

### 2. Brief description of the target audience

- homeowners
- producers/growers
- policy regulators
- visitors to the state

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

### 1. Standard output measures

| 2009 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---|---|---|---|---|
| **Plan** | 0 | 0 | 0 | 0 |
| **Actual** | 0 | 0 | 0 | 0 |

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

**Patent Applications Submitted**

Year: 2009
Plan: 1
Actual: 5

**Patents listed**
Termite Enzymes and Uses Thereof for Invitro Conversion of Lignin-containing Materials to Fermentable Products
Materials and Methods for Detecting, Preventing and Treating Retroviral Infection
Materials And Methods For Pest Control
Use of RNA Interference to Validate New Termiticide Target Sites
NecDew Ant Bait Spray

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

**Number of Peer Reviewed Publications**

| 2009 | Extension | Research | Total |
|---|---|---|---|
| Plan | 0 | 155 | |
| Actual | 0 | 154 | 154 |

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

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

## V. State Defined Outcomes Table of Content

| O. No. | OUTCOME NAME |
|---|---|
| 1 | Improve methods for appraisal of soil resources |
| 2 | Improve soil, water and nutrient relationships |
| 3 | Improve the management of saline and sodic soils and salinity |
| 4 | Increase protection of soil from harmful effects of natural elements |
| 5 | Improve conservation and efficient use of water |
| 6 | Increase watershed protection and management |
| 7 | Improve methods for managing range resources |
| 8 | Improve mangement and control of forest and range fires |
| 9 | Improve management and sustainability of forest resource |
| 10 | Improve urban forestry |
| 11 | Improve Florida agroforestry |
| 12 | Identify alternative uses of land |
| 13 | Increase knowledge related to weather and climate |
| 14 | Improved pollution prevention techniques and mitigation |
| 15 | Improve methods of protecting aquatic and terrestrial wildlife environment |
| 16 | Improve conservation of biological diversity |
| 17 | Increase air resource protection and management |

## Outcome #1

### 1. Outcome Measures

Improve methods for appraisal of soil resources

### 2. Associated Institution Types

- 1862 Research

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**

As the area available for animal waste disposal decreases there is an increased potential to degrade both agricultural productivity and general environmental quality. The potential detrimental impact of P runoff on surface water quality through eutrophication have been widely recognized and investigated. However, several issues associated with P cycling in animal waste amended soils and its impact on the partitioning of other contaminants are not being actively addressed by other research initiatives and, therefore, warrant further investigation. This project probes the forms of phosphorus in soils amended with animal waste and other amendments, and the potential of these forms to be retained or released by the soils. The overall purpose is to improve understanding of the reactions that dictate whether phosphorus is retained in soils or released to become a potential water quality problem.

**What has been done**

Identify appropriate field sites and/or soil and litter/manure samples for subsequent characterization based on total P levels, and common P-containing organics (i.e., phytate). Collect sufficient historical management information for each field site. Assign participants experimental tasks based on his or her expertise and access to appropriate supplies and instrumentation. Develop appropriate soil fractionation methods for production of materials for characterization in subsequent phases of the study. Conduct instrumental characterization, such as x-ray diffraction (XRD) and analytical electron microscopy (AEM), of soils and residual solid materials from batch experiments. Develop and implement various batch partitioning/release and extraction experiments. Chemically analyze the resultant extracts for various forms of P and other trace elements.

**Results**

Results show the importance of taking P speciation into account in making assessments of P-related environmental risks. For example, total P and soil-test P would be very high for soils forming in many geologically P-rich parent materials even when no agricultural P has been applied. Soil test P would indicate a very high risk that is unwarranted in many cases because P solubility is low despite high P content. Also, some of these soils may have relatively high potential to retain added P despite the high native P concentration. Conversely, a low soil test P is not a valid low-risk indicator for some sandy soils that have uncoated grains and very low P retention. In effect, these soils would retain very little P and could not be safely used for application of dairy effluent at nitrogen loading rates. A more valid indicator for risk of P loss from sandy soil is the "safe P storage capacity", which is a calculation of the amount of P that can be added to the soil before it precipitously starts to release P ("at the change point"). The discovery that Mg can enable Ca-P precipitation at elevated pH could be exploited in developing technologies to recover P from manure waste. The chemical interaction of Ca, Mg, carbonate, and P

is an important consideration given their ubiquitous presence in manure. Recovery of P in a form that can be managed and applied as needed would reduce the environmental risks and economic burdens associated with on-farm manure disposal. Phosphorus can only be reduced in animal diets to the extent that animal health and productivity are not impaired. Dietary control of Ca and Mg could be a means of reducing P solubility in manure beyond what can be achieved by dietary P reduction alone.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 101 | Appraisal of Soil Resources |
| 102 | Soil, Plant, Water, Nutrient Relationships |

**Outcome #2**

**1. Outcome Measures**

Improve soil, water and nutrient relationships

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
Water quality degradation is a public concern. Non-point sources contribute nutrients and heavy metals (including copper) to the water. This project aims to improving our understanding of soil nutrient status, chemical and biochemical processes, and agricultural practices that may affect nutrient utilization and transport; and to reduce nutrient loadings in surface runoff from agriculture.

**What has been done**
To evaluate the status and chemistry of nitrogen (N), phosphorus (P), and some important heavy metals (including copper) in major types of soil in the Indian River area, Florida. To understand some key chemical and biochemical processes controlling transport and bioavailability of N, P, and important heavy metals in soils. To monitor transport of N, P, and important heavy metals from citrus and vegetable production systems. To develop best management practices of fertilization for sustainable production of citrus and vegetable crops and improvement of water quality in Florida.

**Results**
The global demand for food is expected to double from 1991 to 2030, leading consequently to increasing water use for food production. Agriculture is estimated to withdraw two-thirds of the worlds' fresh water, which accounts for 90% of total water consumption Therefore, it is of crucial importance to improve the efficiency of water use. Beneficial re-use of reclaimed water can significantly contribute to water conservation. However, there is public concern regarding the impact of waste water irrigation on soil and water quality as well as food safety due to lack of long-term monitoring studies. The results from this study indicate that irrigation with municipal reclaimed water can not only save million gallon of water per ha per year but also improves soil quality and productivity by adding

organic matter and nutrients (N, P and K) to the soils with minimal risk to the environment and food quality.

**4. Associated Knowledge Areas**

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

**Outcome #3**

**1. Outcome Measures**

Improve the management of saline and sodic soils and salinity

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

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

**What has been done**
{No Data Entered}

**Results**
{No Data Entered}

**4. Associated Knowledge Areas**

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

**Outcome #4**

**1. Outcome Measures**

Increase protection of soil from harmful effects of natural elements

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

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

**What has been done**
{No Data Entered}

**Results**
{No Data Entered}

**4. Associated Knowledge Areas**

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

**Outcome #5**

**1. Outcome Measures**

Improve conservation and efficient use of water

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**

Availability of water for nursery production is predicted to decline throughout the US in the coming decade. Irrigation management must become much more efficient in order to continue to produce quality nursery plants at competitive cost. Knowledge of precise irrigation requirements on a daily basis would go a long way towards achieving sufficient irrigation efficiency. The purpose of this project is to develop tools to predict how much water difference landscape species or cultivars require, either in production or in the landscape, for acceptable growth that can easily be tailored to specific sites.

**What has been done**
1. To quantify actual evapotranspiration of landscape ornamental plants during production. 2. To quantify and qualify effects of sub-optimum irrigation on ornamental plants during production. 3. Develop and evaluate models relating actual and reference evapotranspiration and plant growth for irrigation control. 4. Investigate innovations in ornamental plant production that could improve the efficiency of irrigation and rainfall.

**Results**
Tree water use of the live oak, red maple and holly ranged from 5 oz to 49 gal per day over a 6 year production period as trees grew from 9 inches up to 26 ft tall. Water use varied substantially among species. Compared to measured actual evapotranspiration (ETA), daily water use could be predicted for all 3 species based on reference evapotranspiration (ETo), a species-specific coefficient and a measure of tree size. Tree size measurements of projected canopy area or trunk cross sectional areas (tcsa) resulted in correlation coefficients (r2) of 0.90 to 0.94. Best estimator for tree size across all species was tcsa measured at 12 inches above soil level for these relatively small trees. The results from the project are unique and stem from the one-of-a-kind weighing lysimeter system constructed for this project. Once published in a peer reviewed journal, simple linear equations relating tree size and microclimate conditions to tree water use will be posted to the existing web site for this project. This will provide a basis for precision irrigation of landscape trees in production and in landscapes in temperate humid regions in the US and world wide. The positive growth effect from clean pine chips offers another alternative substrate component for container-grown ornamental plants. The current experiment seeks to verify the response to clean pine chips is wide spread. Pine chips are a renewal and sustainability commodity that makes use of whole pine trees instead of just their bark. This can alleviate bark shortages for nurseries due to either reduced tree harvest due to low lumber demand or increased competition from landscape mulching. Determining the threshold of irrigation for aesthetically pleasing landscape appearance should lead to reduced irrigation of residential and commercial landscapes. Roughly 40% of water consumption in Florida is thought to be applied to landscapes. Reducing irrigation to aesthetically pleasing levels will have minimum impact on visual appeal, but will reduce inputs of labor for maintenance and fertilizer applications. It would also reduce demands on water resources and the volume of green waste generated from landscape maintenance. Development of accurate models to predict mixed plant landscapes should reduce water consumption in landscapes and provide a model for other regions of the US.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 111 | Conservation and Efficient Use of Water |

**Outcome #6**

**1. Outcome Measures**

Increase watershed protection and management

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
Degradation of water quality has been linked to increased losses of dissolved and particulate P in runoff from agricultural soils. The purpose of this project is to develop and promote innovative solutions to minimize phosphorus losses from agriculture by supporting: 1) information exchange between research, extension, and regulatory communities, 2) recommendations for phosphorus management and research, and 3) initiatives that address phosphorus loss in agriculture.

**What has been done**
All research has been completed on the project to integrate phosphorus source coefficients (PSCs) into the P Index in Delaware. Three phases of the study were completed including 1) speciation of P in manures and biosolids, 2) development of a weighting factor for risk assessment tools that will better predict the potential for P loss when biosolids or manures are incorporated into Mid-Atlantic soils, and 3) evaluation of the reliability of P source coefficients when biosolids or manure amended soils were subjected to anoxic conditions, where environmental changes may impact the P solubility of biosolids or manures. Work concluded on a project to determine nutrient (including P) budgets for Delaware agriculture. In addition, we completed an analysis of the potential for nutrient losses from potted ornamental bedding plants during production when composted dairy manure solids were used as a substitute for peat moss in potting mix. PARTICIPANTS: Participants on the composted cow dairy manure solids project include: Dr. Craig Stanley, Dr. Brent Harbaugh, Dr. Geoffrey Denny, Gitta Shurberg (biological scientist), and Shawna Loper (graduate student). Participants on the phosphorus source coefficients and the Delaware nutrient budgets include Dr. J. Thomas Sims and Dr. Joshua McGrath. TARGET AUDIENCES: Phosphorus source coefficients and nutrient budgets: agricultural producers, nutrient management planners, and researchers. Composted dairy solids for potting media: ornamental plant producers, dairy farmers.

**Results**
Results of the P source coefficient studies are currently being used to update the DE phosphorus index. The studies will allow for more accurate assessment of the risk for P loss from agricultural fields that are amended with biosolids or manures. In addition, the DE nutrient budgets for the last ten years have shown that nutrient management planning and training activities in Delaware are reducing the amount of excess N and P applied to crop land throughout the state. The study also demonstrates that efforts to alter poultry diets have decreased the amount of manure P that will be applied to agricultural lands. The goal of the study is to allow for more accurate tracking of nutrients (including P) throughout the state. Composted dairy manure solids can be used as a viable alternative to Canadian and Florida peat for production of bedding plants in FL, especially if growers irrigate to limit leachate thereby reducing the potential for nutrient losses. Publication was also completed on research: Shober, A.L. and J.T. Sims. 2009. Evaluating phosphorus release from biosolids and manure-amended soils under anoxic conditions. Journal of Environmental Quality, 38(1)

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 111 | Conservation and Efficient Use of Water |

## Outcome #7

### 1. Outcome Measures

Improve methods for managing range resources

### 2. Associated Institution Types

- 1862 Research

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
Little information in known concerning the weed control spectrum for newly released herbicides in pastures. Additionally, the short term and/or long term impacts on forages are unknown. Furthermore, the biology of many of the common weed species found in Florida pastures has not been investigated with regards to growth analysis, seed germination and viability, and total seed production. Invasive weeds are detrimental to pasture productivity, displace native species in natural areas, and reduce visibility in highway rights-of-ways. This project examines the weed control spectrum of herbicides and forage tolerance to herbicides, while relying upon the biology of weedy species to develop management practices for weed control (native and invasive)in pastures and rangeland, natural areas, and highway rights-of-ways.

**What has been done**
Experiments were conducted to determine the most effective treatments for wax myrtle, blackberry, dogfennel, smutgrass, and various other weed species commonly found in perennial grass pastures. Two experimental herbicides were evaluated. DuPont Crop Protection's MAT28 experimental herbicide was examined alone and with tank-mixes on two different sizes of dogfennel. Sulfosulfuron was evaluated for forage tolerance on stargrass and limpograss cultivars in over six locations. Several treatments of glyphosate and imazapyr were applied in restored wetland ecosystems to determine the best treatments to control West Indian marsh grass and para grass. The herbicide treatments were applied in conjunction with differing water levels. Knowledge gained from experiments conducted in pastures has been utilized to educate ranchers and county extension faculty through various outlets. The Annual Pasture Weed Day was held in September, with nearly 100 clientele present. During this field day, ranchers and county extension faculty were able to see demonstrations concerning. Information on MAT28, sulfosulfuron safety on forages, techniques for woody plant control, soft rush control, and natal grass control was provided to ranchers through various demonstration plots. Additionally, information was demonstrated on proper sprayer calibration and sprayer technology. Other activities have included presenting information at grower meetings, advisory committee meetings and short courses, where over 1,000 clientele were reached through these activities. Knowledge of control of invasive grasses, such as para grass and West Indian marsh grass, was disseminated to end-users at the aquatic weed control short course, where over 300 participants were present. County extension faculty were instructed on MAT28 separate from ranchers as this is a product that is under investigation.

**Results**
Research findings from the sulfosulfuron studies on forage safety will likely result in the addtion of stargrass and limpograss to the Outrider label.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 121 | Management of Range Resources |

**Outcome #8**

**1. Outcome Measures**

Improve mangement and control of forest and range fires

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

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

**What has been done**
{No Data Entered}

**Results**
{No Data Entered}

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 122 | Management and Control of Forest and Range Fires |

**Outcome #9**

**1. Outcome Measures**

Improve management and sustainability of forest resource

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
This project involves development and testing of computer simulation models. The models will be used to help plan the management of forests for carbon sequestration, enhanced ecological services, and sustainable harvest of forest products.

**What has been done**
In order to better model natural longleaf pine savannas, a spatially-explicit model including fire dynamics, competition between oaks and hardwoods, regeneration with masting and sprouting has been developed. airborne Lidar data is being evaluated for use with model testing. Using terrestrial Lidar data for Regression Tree modeling of fire behavior and fire characteristics has been tested. Slash pine carbon dynamics are being modeling with Artificial Neural Networks, Regression Tree models, and the Pnet simulation model. Eddy covariance data are being used for calibration and testing.

**Results**
Project results have been published in peer-reviewed journals allowing communication of the research to the scientific community. 1) Net forest productivity has been positively and linearly related to the amount of light absorbed or intercepted by tree crowns. We have demonstrated that airborne lidar is an effective technique for estimating canopy light absorption. 2) Tree productivity and agricultural productivity can both take place in a single unified agroforestry system. We have modeling a pecan and cotton agroforestry system to better understand the benefits of this production system. 3)Using a novel system with a forest dynamics model we have demonstrated a system of nested multimodel projections, leading to partitioning of the model uncertainty into model stochasticity, starting conditions, parameter uncertainty, and uncertainty associated with model assumptions. 4) We have demonstrated the potential for ground-based lidar to provide data needed for modeling fire behavior.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 123 | Management and Sustainability of Forest Resources |

**Outcome #10**

**1. Outcome Measures**

Improve urban forestry

Not Reporting on this Outcome Measure

**Outcome #11**

**1. Outcome Measures**

Improve Florida agroforestry

Not Reporting on this Outcome Measure

**Outcome #12**

**1. Outcome Measures**

Identify alternative uses of land

Not Reporting on this Outcome Measure

**Outcome #13**

**1. Outcome Measures**

Increase knowledge related to weather and climate

Not Reporting on this Outcome Measure

**Outcome #14**

**1. Outcome Measures**

Improved pollution prevention techniques and mitigation

Not Reporting on this Outcome Measure

**Outcome #15**

**1. Outcome Measures**

Improve methods of protecting aquatic and terrestrial wildlife environment

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
Protocols for seed/transplant production and outplanting are lacking for many species important to restoration of coastal ecosytems. Seed production can be limiting to restoration of longleaf pine groundcover. Identification of the appropriate time and techniques for the growing and planting of a variety of species important to wildlife and barrier island structure are needed. This project examines production (seed and tranplants) and outplanting procedures for herbaceous species integral to restoration of Gulf coastal upland ecosystems.

**What has been done**
Dune Restoration and barrier island ecology projects: Data was analized and two manuscripts prepared describing results of woody restoration experiments initiated in 2006. Five greenhouse and 2 beach planting experiments were the subject of a thesis submitted in Spring 2009 which described the effects of swale microsites, vegetative cover and watering regime on survival and growth of myrica cerifera and 2 quercus species. Characterization of natural plant regeneration on Santa Rosa Island continued. Sea Oats density and flower/seed production and germination experiments were initiated in the summer of 2009. An experiment to investigate the potential for establishing maritime bluestem as a turf within a managed landscape was initiated. New experiments were initiated and data collection continues to further understand habitat needs and landscape utilization by the Santa Rosa Beach Mouse. Plant propagation exeriments were completed for 3 coastal species of Polygonella, Chrysoma pauciflosculosa, and Licania Michauxii. Two field experiments were initiated to investigate the landscape performance of 3 coastal species of Polygonella, Chrysoma pauciflosculosa, and Licania Michauxii.
PARTICIPANTS: Sean Claypool and Tim Baxley were added as new field technicians, and a new graduate student added to the project, Megan Brown (PhD). A regional meeting of Federal, state and county land managers occured in 2009 and expanded the participants and contacts for the project. Additional contacts include: David Mitchell, Department of Environmental Protection Restoration Division, Tova Spector, Florida Park Service, and Vernon Compton, The Nature Conservancy.

**Results**
One graduate student was trained and is currently employed by the National Park Service. Project leaders participated in a meeting with managers of federal, state and county lands to discuss new methods and approaches for coastal restoration with implications for conservation and recovery of Santa Rosa Beach Mouse and the Perdido Key Beach Mouse. Consultations with land managers provided information utilized in dune restoration activities at the Gulf Islands National Seashore and Perdido Key State Park. Research findings were presented at The Coastal Plain Chapter of the Society for Ecological Restoration 2009 Annual Symposium and the Ecological Society of America annual meeting, and the Florida Coastal Training Program Coastal Dune Erosion Control and Restoration Workshop.

### 4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---|---|
| 135 | Aquatic and Terrestrial Wildlife |

## Outcome #16

### 1. Outcome Measures

Improve conservation of biological diversity

### 2. Associated Institution Types

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
Seed of Coreopsis leavenworthii is being produced by growers. A number of questions frequently arise in commercial seed production and decision making for seed sources. Where should seeds of a local ecotype be produced? What seeds should be used in beautification, restoration, or mitigation projects? Does it matter if a south Florida ecotype is produced in north Florida? Is there a decline in diversity when native ecotypes are put into production? Is there a decline in diversity over time when various ecotypes have been planted on roadsides? To address these questions, it is necessary to assess the levels of genetic diversity within and among the natural C. leavenworthii populations from Florida's different regions and to compare these levels with those in the stock plant populations being used by seed producers, and to compare these levels with those of the roadside populations that have been planted. The purpose of this study is to provide evidence of genetic similarity or differences among Florida populations or ecotypes, to provide evidence of short-term genetic drift and changes in genetic diversity in planted population, and to provide guidance for seed producers and highway beautification managers to select appropriate ecotypes.

**What has been done**
(1) Assessing potential changes in genetic diversity: G0 (generation 0) seed of Coreopsis leavenworthii collected in 2006 from a natural population in central Florida was further increased to G3 in central and northern Florida. Seed of G0 and all the six increase populations was germinated, 525 individuals were grown in a common garden, and the plant height, leaf complexity, days to flower, and flower size of these individuals were measured. Results indicated no obvious changes in these characteristics at the population level when seeds were increased from G0 to G3. (2) Developing Coreopsis-specific SSR markers: More than 100 SSR-containing DNA sequences were obtained from enriching, cloning and sequencing of Coreopsis leavenworthii nuclear genomic sequences. Specific oligonucleotide primers were designed for 66 SSR-containing genomic sequences. Tests are under way to confirm the primers' PCR amplification specificity and ability to detect polymorphisms. (3) Detecting natural gene flow events from Coreopsis tinctoria to C. leavenworthii: More than 7,000 plants from the second field gene flow study were grown and examined to detect natural gene flow events. Forty-five hybrids that carried the maroon spot, the morphological indicator of natural gene flow from C. tinctoria to C. leavenworthii, were observed. Results from this test confirmed the strong effect of planting distances on natural gene flow from C. tinctoria to C. leavenworthii that was observed in the first test, but overall, the gene flow rates in this test were slightly lower, and gene flow occurred within a shorter distance, compared to the first gene flow study. The highest gene flow rate was 3.2%, observed when the two species were planted 5 feet apart; the lowest gene flow rate was 0.3%, which occurred when the two species were planted 50 feet apart. Natural gene flow was not observed when the planting distance was 100 feet or greater. PARTICIPANTS: Nothing significant to report during this reporting period.

**Results**
Coreopsis leavenworthii seed is produced in Florida by growers in large quantities. However, little information is available regarding two critical issues wildflower seed producers and users are facing: potential loss of genetic diversity during seed increase (production) and possible gene flow from C. tinctoria, the progenitor species of C. leavenworthii. Results from this project so far have shown that there are little changes in plant, leaf, and flower morphology during three generations of seed increase. Further analyses will be conducted at the molecular level using Coreopsis-specific SSR markers to validate these results from morphological observations. Completion of these analyses will provide definitive evidences of whether there is any loss of genetic diversity over time in seed production of C. leavenworthii. Greenhouse controlled pollinations and field gene flow studies have shown that C. tinctoria can cross-pollinate C. leavenworthii and determined the effects of planting distances on the rate of natural gene flow. These results will provide important information for developing guidelines for growers who

produce C. leavenworthii seed and for users who plant the two species.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 136 | Conservation of Biological Diversity |

**Outcome #17**

**1. Outcome Measures**

Increase air resource protection and management

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 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 lead to large-scale fires. Florida also has other weather extremes such as floods leading to large scale damage especially along coastal regions and rivers that can impact research studies.

Florida has three international shipping ports and four international airports with a new one scheduled to open in 2010. Besides imported goods over 53 million tourists visited annually from around the world. It has been estimated that because of this international influx into the state, we are the entry point for one new invasive plant, pest or disease each week. Any of these external factors can adversly affect the 1862 research outcomes.

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)

- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Comparison between locales where the program operates and sites without program intervention

**Evaluation Results**

Natural resources and the environment is an important component of the research branch of the Florida land-grant university. Protecting wildlife, water and the Florida environment from pollution, disease, pests and invasive plants and animals are all areas in which research has conducted. Many of the programs have provided new best management practices or solutions to problems identified at the grassroots level and have saved Floridian's millions of dollars.

**Key Items of Evaluation**

Certain nutrient management and irrigation practices influence the amount of nutrient leaching. The role of sodium on sports turf performance and nutrition is not well-understood. This project examines the effect of fertilizer rates, sources, and timing and irrigation management on nutrient leaching. The environmental impact of such practices will be determined. The effect of sodium on turfgrass performance will be quantified.

During the reporting period a series of studies investigating the environmental impacts of turfgrass management were conducted in south Florida. Anuual reports to granting agencies were submitted and accepted. A paper submitted to Crop Science was accepted and is in the process of publication in 2010.

During this period, the effect of applying excessive N rates during routine application and near proposed blackout periods for fertilization were determined. Nitrogen applied at excessively high rates did not contribute to increased N in percolate water compared to an unfertilized control when slow release N sources were applied. During this period, the inport/export of P from sod production areas nearby Lake Okeechobee were determined. Exports of P were greater than inports.

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

**Program # 9**

**1. Name of the Planned Program**

Plants and Their Systems-research

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

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---|---|---|---|---|---|
| 101 | Appraisal of Soil Resources | 0% | 0% | 15% | |
| 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% | 15% | |
| 205 | Plant Management Systems | 0% | 0% | 5% | |
| 206 | Basic Plant Biology | 0% | 0% | 5% | |
| 211 | Insects, Mites, and Other Arthropods Affecting Plants | 0% | 0% | 15% | |
| 212 | Pathogens and Nematodes Affecting Plants | 0% | 0% | 5% | |
| 213 | Weeds Affecting Plants | 0% | 0% | 10% | |
| 214 | Vertebrates, Mollusks, and Other Pests Affecting Plants | 0% | 0% | 5% | |
| 215 | Biological Control of Pests Affecting Plants | 0% | 0% | 5% | |
| 216 | Integrated Pest Management Systems | 0% | 0% | 5% | |
| | **Total** | 0% | 0% | 100% | |

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

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

| Year: 2009 | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 0.0 | 0.0 | 156.4 | 0.0 |
| Actual | 0.0 | 0.0 | 55.7 | 0.0 |

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

| Extension | | Research | |
|---|---|---|---|
| **Smith-Lever 3b & 3c** | **1890 Extension** | **Hatch** | **Evans-Allen** |
| 0 | 0 | 1697172 | 0 |
| **1862 Matching** | **1890 Matching** | **1862 Matching** | **1890 Matching** |
| 0 | 0 | 1697172 | 0 |
| **1862 All Other** | **1890 All Other** | **1862 All Other** | **1890 All Other** |
| 0 | 0 | 1697172 | 0 |

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

### 1. Brief description of the Activity

- Conduct Research Experiments
- Partnering

### 2. Brief description of the target audience

Florida citizens with an interest in plants and plant science
May include among others:
•growers •producers •general public

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

### 1. Standard output measures

| 2009 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---|---|---|---|---|
| **Plan** | 0 | 0 | 0 | 0 |
| **Actual** | 0 | 0 | 0 | 0 |

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

**Patent Applications Submitted**

Year: 2009
Plan: 1
Actual: 32

**Patents listed**
Slow-Release Oxygen Fertilizer
Use of Bacteriophage Outer Membrane Breaching Proteins Expressed in Plants for the Control of Gram-negative Bacteria (CIP of 11238 and 12626)
Virus-Based Transient-Expression Vector System for Controlling Diseases in Citrus Trees
Caladium plant named '75-14'
Sweet Orange Tree Named ?SF14W-62?
Sweet Orange Tree Named 'N7-3'
AGLAOENEMA PLANT NAMED 'UF-742-3'
Caladium Plant Named 'UF404'
Caladium Plant Named 'UF340'
Caladium Plant Named 'UF331'
Mandarin hybrid named LB9-9
Horizon LA976, oat
Epipremnum plant named 'UFM12'
Epipremnum Plant Named 'UFM10'
Philodendron plant named 'UFM1'
PEACH TREE NAMED 'UF ONE'
Horizon 270, oat
Guava Leaf Sulfur Volatiles Act as Repellents for Diaphorina Citri
Improving Crop Stress Tolerance, Yield and Quality via Glutaredoxin Overexpression
Prop-Strip and Prop-Tube for Transplanting and Rooting Plant Cuttings
Leaf Area Regulator to Increase Plant Photosynthetic Capacity and Biomass
Computerized Automatic Variable Rate Controller for Grove Fertilization and Spraying
Neuropeptides and Their Use for Pest Control (CON)
METHODS AND MATERIALS FOR INCREASING STARCH BIOSYNTHESIS IN PLANTS
Ascarosides Act as Nematode Sex Pheromones
Isolation and Targeted Suppression of Lignin Biosyntetic Genes from Sugarcane
A Cucurbita Breeding Line with Crown Rot Resistance to Phytophthora Capsici
Broad Antiviral Activity in a SOCS-1 antagonist peptide
Archaeal Laccases and Multicopper Oxidases (MCOs) and Their uses thereof
Engineering the Pathway for Succinate Production
Biocatalyst for Complete conversion of Hemicellulose Hydrolysates to Biobased Products
Poxvirus Therapy with Tyrosine Kinase Inhibitors Tkip and SOCS1-KIR

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

**Number of Peer Reviewed Publications**

| 2009 | Extension | Research | Total |
|---|---|---|---|
| Plan | 0 | 205 | |
| Actual | 0 | 433 | 433 |

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

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

## V. State Defined Outcomes Table of Content

| O. No. | OUTCOME NAME |
|---|---|
| 1 | Development and use of bioherbicides can help to diversify weed control options, supplement chemical herbicides, and provide an alternative to methyl bromide |
| 2 | Discover, develop, evaluate and disseminate knowledge and information necessary to support the agronomic-related industries of the State and nation, |
| 3 | Promote and enhance the production and utilization of agronomic commodities and the management of pest plant species for the benefit of society. |
| 4 | Developing and disseminating environmentally and economically sound technolo-gies related to water management and plant nutrition that will increase production and utilization efficiencies |
| 5 | Develop horticultural characteristics, disease and host/plant resistance through classical genetics and molecular techniques, allowing the creation of marketable products for consumers |
| 6 | Research and develop crop production and physiology information and will set an example for the industry in environmen-tally safe practices. |
| 7 | Research and solve immediate technical problems facing the fruit and vegetable industries including the development of new information, materials and techniques to increase the efficiency of production, harvest and post-harvest handling |
| 8 | Develop new food plant cultivars that have improved quality characteristics. |
| 9 | improve knowledge about basic plant biology |

## Outcome #1

### 1. Outcome Measures

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

### 2. Associated Institution Types

- 1862 Research

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
Alien invasive plants are a major economic concern in agriculture, interfere with transportation and disrupt native ecosystems. This project will investigate and implement classical biological control options to reduce densities of alien invasive plants.

**What has been done**
Effective biological control of invasive alien plants through the introduction and establishment of host specific natural enemies. Initial plants to be addressed include Schinus terebinthifolius (Brazilian Peppertree), Dioscorea bulbifera (air potato) and Hymenachne amplexicaulis (West Indian marsh grass). Additional invasive weeds may be targeted during the course of this CRIS. a)Improve foreign exploration for natural enemies of Brazilian Peppertree by identifying the origin Florida populations through molecular characterization of its genetic diversity in Florida and South America. b)Determine the geographic distribution of Brazilian Peppertree, Schinus terebinthifolius, in Florida using remote sensing. c)Determine the geographic origin of air potato, Dioscorea bulbifera, in Florida as a first step towards initiating foreign exploration for biological control agents. d)Initiate collaborative activities with foreign scientists to identify host specific arthropod herbivores of air potato in its native home. e)Introduce candidate biological control agents of air potato into quarantine in Florida for non-target host testing. f)Conduct laboratory and field studies to describe the biology and host range of Ischnodemus variegatus, an exotic insect that feeds on the exotic invasive weed, Hymenachne amplexicaulis (West Indian Marsh Grass), in Florida. g)Evaluate the effect of Ischnodemus variegatus on growth, survival and reproduction of West Indian Marsh Grass. h)Evaluate the effect of Hymenachne amplexicaulis on plant and arthropod diversity in Florida fresh water marshes.

**Results**
Information gained from these studies on exotic plants and natural enemies will be used to explain establishment of biological control agents, or lack thereof, at various sites in Florida and neighboring states. Information gained will also be useful in selecting locations for future releases and to evaluate the impact of biological control agents on target weeds.

### 4. Associated Knowledge Areas

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

213 Weeds Affecting Plants

**Outcome #2**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
Many allied agribusiness companies such as garden centers, landscape maintenance contractors, wholesale growers, and similar enterprises depend on ornamental horticulture research for economically feasible production and maintenance practices that protect the enviornment while maximizing production and plant performance. The purpose of this project is to evaluate effective production and maintenance practices that are economically feasible and environmentally sound.

**What has been done**
A 2-year study of fertilizer type on the establishment of container-grown areca palms and Chinese hibiscus was completed. A long-term study designed to determine optimum nitrogen and potassium rates and ratios for field production and maintenance of landscape palms was initiated. A study of the effects of soil applied turf herbicides on palms was completed. A study of the effects of nitrogen form (soluble vs controlled release) on potassium deficiency severity of washingtonia palms was initiated. A study of the effects of potassium deficiency on leaf senescence rates and patterns in 4 species of palms was performed.

**Results**
A study on the effects of fertilization on the cold tolerance of field-grown coconut palms showed that palms that had been regularly fertilized for 3 years with 8N-0.9P-10k-4Mg fertilizer were much more tolerant of cold temperatures than those that had never been fertilized. Fertilized palms had larger canopies, heavy fruit set, little potassium deficiency, and exhibited less than 5% necrosis after exposure to 2-3C temperatures for a single night during each of two winters. Unfertilized palms had smaller, potassium-deficient canopies, poor fruit set, and averaged 45-50% necrosis from cold injury. In a study evaluating the effects of high nitrogen fertilizer applied during the establishment period of container-grown areca palms and Chinese hibiscus, we found that plant size and color intensity at 12 and 24 months for both species were positively correlated with both initial and cumulative nitrogen fertilizer rates. Although palms continuously receiving high nitrogen rates for 2 years were the largest and had the darkest green color, palms receiving a medium rate of N for 2 years had equivalent size and color and also had a lower incidence of induced magnesium deficiency. In a study of the effects of potassium deficiency on leaf necrosis rates and patterns in palms, we found that older leaves of potassium-deficient palms developed necrosis and ultimately died prematurely over an extended (6-25 weeks) period via potassium deficiency symptoms, whereas older leaves of potassium-sufficient palms remained on the tree longer, but senescesed rapidly (less than 1 week) when they were ready to abscise.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 205 | Plant Management Systems |

**Outcome #3**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
Severe diseases, pests, and environmental stresses are the major limiting factor in commercial production and garden use of floricultural plants in the subtropical United States. This project is to identify sources of resistance to major diseases and pests and tolerance to temperature and light stresses, and to incoporate the resistance and tolerance into new cultivars that can perform better in commercial production and home gardens.

**What has been done**
Germplasm will be screened and assessed through artificial inoculation and natural disease and pest pressure to identify sources of host plant resistance to soil-borne diseases and nematodes, and through growth chamber or greenhouse tests to identify sources of tolerance to environmental stresses. Pedigree breeding utilizing crossing, backcrossing and modified backcrossing will be used to develop new cultivars or inbreds with improved resistance to Fusarium tuber rot, Pythium root rot, powdery mildew, or root-knot nematodes, and enhanced tolerance to temperature and sunlight stresses. Tissue culture, ploidy manipulation, molecular marker analysis, and genetic transformation will be incorporated to facilitate improvement of specific traits. Various populations (F1, F2 and backcrosses) will be developed, progeny will be assessed for disease and pest resistance, and segregation of resistance and susceptibility will be analyzed to determine the genetic bases of the traits.

**Results**
The eight released caladium varieties produce attractive plants with beautiful leaves of bright colors and are much improved in aesthetical values. For example, Cranberry Star produces a superb number of bright white leaves with green main and secondary veins and numerous bright purple spots. Leaves of UF-331 are characterized by large dark green veins and white interveinal areas. UF-340 develops a large number of wide lance leaves with a large, bright, and pure white center surrounded by green margins. UF-404 produces numerous brightly colored, wide and lance-shaped leaves. These combinations of leaf characteristics make the new varieties distinct from existing varieties and highly desirable for use as potted plants or for growing in landscapes. These new varieties also produce more tubers, have higher production values, and can be produced in containers in shorter crop

times. Two varieties were improved in resistance to fusarium tuber rot and pythium root rot, and one variety has improved chilling tolerance. The released gerbera varieties show a range of bright flower colors, produce large plants with a continuous supply of flowers in the containers and in the garden beds. They are much improved in resistance to powdery mildew. In summary, these improved attributes of the new varieties should be very beneficial to both growers and consumers. Molecular marker analysis indicates that there is a limited amount of diversity in caladium varieties, but there is a great repertoire of unique genes in species accessions that can be used to enhance the diversity in future varieties and to reduce potential genetic vulnerability. Sixty-eight ESTs targeted by the gerbera SSR markers have putative gene functions, and two marker loci have potential to be associated with disease resistance or flowering time. The availability of SSR markers and trait inheritance information will be of great value to improve floricultural crop breeding efficiency.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 201 | Plant Genome, Genetics, and Genetic Mechanisms |
| 202 | Plant Genetic Resources |
| 205 | Plant Management Systems |
| 215 | Biological Control of Pests Affecting Plants |
| 216 | Integrated Pest Management Systems |

**Outcome #4**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
Research in areas of environmental-sound maintenance is absolutely necessary to satisfy the needs of a rapidly expanding turfgrass industry. The proposed research will investigate the means and methods of managing turfgrass nutrient manangement programs such that fertilization efficiency is maximized and the potential for ground water contamination is minimized.

**What has been done**
Plots were established at different sites on bermudagrasses, St. Augustinegrasses and ryegrasses to assess the environmental impact and water use of various turfgrass fertilization programs and to determine the influence of soil fertility and other parameters on the quality and quantity of turfgrasses produced.

**Results**
This extensive study of P fertilzation of home lawn grasses resulted in establishment of the quantity of tissue P required to sustain the grasses, established a clear relationship between the application rate and the quantity of P accumulated in the soil, established a relationship between the soil test P level and turfgrass growth and tissue P, and established a relationship between P application rates and the quantity of P leached in a low-P absorbing sand soil.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 101 | Appraisal of Soil Resources |
| 205 | Plant Management Systems |

**Outcome #5**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
Seasonal forage quantity and quality are factors limiting livestock production in Florida. 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.

**What has been done**
Field evaluation of new A. glabrata germplasm introduced from Paraguay indicates that most of these new introductions are low growing "ground cover" types. One accession, GRIF 15072, is an upright forage type with yields similar to 'Florigraze' and 'Arbrook'. These new accessions of A. glabrata from Paraguay provide genetic diversity especially in the ground cover type accessions. Additionally, the GRIF 15072 provides genetic diversity for forage types as most all previous A. glabrata introductions were from Brazil or Argentina. Experiments with A. paraguayensis have included evaluation for seed production, leafspot disease resistance, and ability to regenerate from in vitro tissue culture. As a result of the in vitro studies, we have identified a protocol for successful embryogenic regeneration of A. paraguayensis. In the 2009 growing season an incidence of pepper spot (Leptosphaerulina crassiaca) was documented and rated for severity on the new accessions from Paraguay. The disease does not appear to be of major significance at this point. Journal publications documenting the release of two new A. glabrata cultivars, UF Tito and UF Peace (PIs 262826 and 658214, respectively) and two germplasms Arblick and Ecoturf (PIs 262839 and 262840, respectively) were approved during 2009 and will be published in 2010.

**Results**
A new red clover population, FLMD, was released in 2009 and negotiations for exclusive seed production and marketing have been completed. This yet unnamed cultivar has a spring dormancy response intermediate between Southern Belle and cultivars developed further north such as Kenton and Freedom!, and it has root-knot nematode resistance similar to Southern Belle.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 201 | Plant Genome, Genetics, and Genetic Mechanisms |
| 202 | Plant Genetic Resources |
| 203 | Plant Biological Efficiency and Abiotic Stresses Affecting Plants |
| 205 | Plant Management Systems |

**Outcome #6**

**1. Outcome Measures**

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

Not Reporting on this Outcome Measure

**Outcome #7**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**

Postharvest losses of fresh-cut produce are difficult to estimate but given the highly perishable nature of fresh-cuts compared to intact produce, the retail value of fresh-cut produce losses may exceed $1 billion annually. The appearance, convenience, and generally high nutritive value of fresh-cut vegetables and fruits are bringing about increased sales of fresh produce, but repeat sales of the fresh-cuts is dependent upon assurance of its safety and the products having pleasing texture and flavor. There is a need for developing more effective handling procedures and innovative, new technologies for maintaining quality and shelf stability of fresh-cut products. The purpose of

this research is to contribute detailed scientific information relating physiology in diverse plant tissues to their quality and shelf stability and provide alternative strategies to the U.S. fresh-cut industry to control deterioration. Improved appearance, taste and other quality characteristics combined with increased shelf-life will likely result in improved nutritional benefits to consumers and decreased postharvest losses to the U.S. fresh-cut industry.

**What has been done**

1) Develop, evaluate, and standardize subjective and objective quality evaluation methods in intact and fresh-cut vegetables and fruits. 2) Develop new strategies to maintain fresh-cut product quality. 3) Improve understanding of biochemical, physiological and molecular mechanisms that affect fresh-cut product quality.

**Results**
Optimum ripeness stage for preparation of fresh-cut mango was determined to be best measured by flesh firmness. The impacts of the hot water treatment used for insect quarantine treatment and low (5 degrees C) handling temperature of the fresh-cut product were shown to not have significant effects on fresh-cut mango shelf life. Use of aqueous formulation of 1-MCP, an ethylene action antagonist, was optimized in tomato and carambola fruit. 1-MCP delays ethylene-related quality changes that shorten fresh-cut fruit shelf life.

**4. Associated Knowledge Areas**

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

**Outcome #8**

**1. Outcome Measures**

Develop new food plant cultivars that have improved quality characteristics.

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
Blueberry cultivars that produce fruit that ripens in April and early May in Florida are not well adapted to the soils and climate of Florida, and the berries are not well suited to mechanical harvest for the fresh market. This project is designed to develop low-chill highbush blueberry cultivars with improved fruit quality and better adaptation to growing conditions found in Florida.

**What has been done**
1. To develop blueberry cultivars that produce high yields of high-quality berries that ripen from April 1 to May 15 in north and central Florida. 2. To study the cytogenetics and breeding value of interspecific hybrids in Vaccinium. 3. To develop information to further the conservation and use of blueberry species native in the southeastern United States.

**Results**
Blueberry cultivars that are adapted to warm areas such as Florida make it possible to harvest fresh blueberries from March 20 to May 20 in the northern hemisphere and from September 20 through November 20 in the southern hemisphere. Without low-chill cultivars such as those being bred in Florida, only frozen blueberries or blueberries long held in controlled atmosphere storage would be available during these four months. Recent cultivar releases from the UF blueberry breeding program have an impact on low-chill production through improvement over existing cultivars (Farthing), addition of novel traits such as crisp flesh texture (Sweetcrisp), expansion of the fruit maturity range to earlier dates (Snowchaser), expansion of the suitable growing area to locations other than Florida (FLX-1), and expansion into potential ornamental production markets (FLX-2). Research into the breeding value of interspecific hybrids has the potential to uncover valuable traits and phenotypes for inclusion in future cultivars. In particular, V. darrowii, and V. arboreum, native Florida blueberries, are an important source of adaptation for survival and productivity in Florida.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 201 | Plant Genome, Genetics, and Genetic Mechanisms |
| 202 | Plant Genetic Resources |
| 206 | Basic Plant Biology |

**Outcome #9**

**1. Outcome Measures**

improve knowledge about basic plant biology

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | {No Data Entered} | 0 |

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

**Issue (Who cares and Why)**
Developmental patterns of seeds define: when they acquire germination ability, their required storage conditions, and their ability to tolerate abiotic stress such as desiccation and cold temperatures. Seeds harvested before they acquire the ability to germinate cannot be propagated and those harvested before they tolerate abiotic stress will perish during storage. Alternatively, mature seeds of some species can not tolerate storage. In all these instances

monetary and genetic resources are wasted as a result of seed death. The developmental physiology of wildflower and palm seeds has not been reported. Without this knowledge the economic and genetic value of seeds stored or harvested for agricultural, restoration, and landscaping use remains questionable.

**What has been done**
Determine the influence of pre-harvest stress on seed quality. 2. Identify the biophysical, biochemical and genetic factors governing seed desiccation tolerance and longevity. 3. Develop technologies to assess seed quality, improve seed performance and enhance seed utilization.

**Results**
Results indicate that germination is significantly delyaed by water impermeable seed coats, seeds are capable of forming seed banks; which may be beneficial from a restoration standpoint, and seed producers may overcome dormancy through combinations of mechanical scarification and warm constant temperatures.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 203 | Plant Biological Efficiency and Abiotic Stresses Affecting Plants |
| 206 | Basic Plant Biology |

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

**External factors which affected outcomes**

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

**Brief Explanation**

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 lead to large-scale fires. Florida also has other weather extremes such as floods leading to large scale damage especially along coastal regions and rivers that can impact research studies.

Florida has three international shipping ports and four international airports with a new one scheduled to open in 2010. Besides imported goods over 53 million tourists visited annually from around the world. It has been estimated that because of this international influx into the state, we are the entry point for one new invasive plant, pest or disease each week. Any of these external factors can adversly affect the 1862 research outcomes.

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)

- During (during program)
- Time series (multiple points before and after program)
- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Comparison between locales where the program operates and sites without program intervention

**Evaluation Results**

Florida conducts many projects in the area of plants and their systems. New cultivars are constantly being developed. Because of the tropical and semi-tropical location Florida also studies plant problems that are unique to the region including soil, water, nutrient, and other elements that can lead to increase crop production and sustainability.

**Key Items of Evaluation**

Plant viruses cause yield losses in a number of horticultural crops in Florida and the tropics of the Western Hemisphere. This project will generate information that will improve the management of these plant viruses. Identified Cucurbit leaf crumple virus in Florida cucurbits in southwest and west central counties and in more crops. 2. Identified Cucurbit yellow stunting disorder virus in Florida cucurbits for the first time. 3. Identified Tomato yellow leaf curl virus in tomato in California for the first time. 4. Began an investigation into the etiology of purpling disorder in tomato. 5. Investigated the mechanism of interference of tobamoviruses with Rep gene-mediated resistance We are the first to establish that tobamoviruses can turn off resistance generated by Begomovirus Rep transgene. We mapped this ability to a specific region of tobamovirus Rep gene. These findings suggest that the resistance generated by the Begomovirus Rep may be due to gene silencing. 6. Explored the possibility that recycled water contains plant viruses We detected Pepper mild mottle virus in recycled water by EM and PCR. However, the viruses were determined to be non-infectious. 7. Evaluated Phaseoulus vulgaris for new genes for resistance to Begomoviruses. We screened 70 inbred lines for resistance to ToMoV and BGYMV. We found that some of his lines provided resistance to ToMoV under cool temperatures (22 C) but not under higher temperatures (28 C) but provided no resistance to BGYMV. In addition, we screened approximately 70 lines of wild germplasm collected by E. Vallejos for resistance to BGYMV. There are no reports of evaluations of wild accessions of Phaseolus vulgaris for resistance to BGYMV. 8. Investigated the inheritance of resistance of Two Rep-Based Transgenes We demonstrated that the ToMoV Rep transgene is inherited in a recessive manner. This is very unusual for a transgene. The TYLCV 2/5Rep transgene was inherited in the expected dominant manner. This study is in the third generation of evaluation. We are in the process of determining if these transgenes can be pyramided. If this approach is successful, it offers a means to develop plants with broad-spectrum resistance to begomoviruses. 9. Determine the etiology of a systemic necrosis of St. Augustinegrass. There is a disease of St. Augustinegrass in Florida that manifests as a lethal systemic necrosis that appears in the fall. This is the dissertation of M. Hosseinzadeh. No fungus is associated with the disease, and a potyvirus was found in symptomatic plants. 10. Conducted a survey of soybean viruses in Florida. We found that soybean are susceptible to Tomato mottle virus and Tomato yellow leaf curl virus. In addition we detected a luteovirus, Soybean dwarf virus, which has never been reported in Florida before. We are in the process of confirming the ELISA results by PCR. Products 1. Conducted studies to improve the viral diagnostic capabilities of the UF Diagnostic Clinic. We compared various rapid commercial extraction protocols with an array of primers designed to detect begomoviruses and developed a set of recommendations for the Diagnostic clinic for rapid PCR-based detection of begomoviruses.

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

**Program # 10**

### 1. Name of the Planned Program

Animals and their Systems--research

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

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---|---|---|---|---|---|
| 301 | Reproductive Performance of Animals | 0% | 0% | 15% | |
| 302 | Nutrient Utilization in Animals | 0% | 0% | 15% | |
| 303 | Genetic Improvement of Animals | 0% | 0% | 5% | |
| 304 | Animal Genome | 0% | 0% | 5% | |
| 305 | Animal Physiological Processes | 0% | 0% | 5% | |
| 306 | Environmental Stress in Animals | 0% | 0% | 15% | |
| 307 | Animal Management Systems | 0% | 0% | 5% | |
| 308 | Improved Animal Products (Before Harvest) | 0% | 0% | 5% | |
| 311 | Animal Diseases | 0% | 0% | 10% | |
| 312 | External Parasites and Pests of Animals | 0% | 0% | 5% | |
| 313 | Internal Parasites in Animals | 0% | 0% | 5% | |
| 314 | Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals | 0% | 0% | 5% | |
| 315 | Animal Welfare/Well-Being and Protection | 0% | 0% | 5% | |
| | **Total** | 0% | 0% | 100% | |

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

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

| Year: 2009 | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 0.0 | 0.0 | 33.0 | 0.0 |
| Actual | 0.0 | 0.0 | 4.8 | 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 | 146142 | 0 |
| **1862 Matching** | **1890 Matching** | **1862 Matching** | **1890 Matching** |
| 0 | 0 | 146142 | 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 •Partnering

### 2. Brief description of the target audience

residents of Florida interested in animals and animal science.This includes
•Growers//Ranchers •Producers/packaging •General public •Government officials •Scientists

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

### 1. Standard output measures

| 2009 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---|---|---|---|---|
| **Plan** | 0 | 0 | 0 | 0 |
| **Actual** | 0 | 0 | 0 | 0 |

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

**Patent Applications Submitted**

Year: 2009
Plan: 1
Actual: 2

**Patents listed**
High Frequency Airway Oscillation for Exhaled Air Diagnostics
Fly Attractant System with Toxicant-Treated Cords

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

**Number of Peer Reviewed Publications**

| 2009 | Extension | Research | Total |
|---|---|---|---|
| **Plan** | 0 | 135 | |
| **Actual** | 0 | 150 | 150 |

## V(F). State Defined Outputs

### Output Target

### Output #1

#### Output Measure

- {No Data Entered}

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

## V. State Defined Outcomes Table of Content

| O. No. | OUTCOME NAME |
|---|---|
| 1 | Improve reproductive performance of animals |
| 2 | Improve nutrient utilization in animals |
| 3 | Improve genetics in animals |
| 4 | Increase knowledge in area of animal genome |
| 5 | Improve animal physiological processes |
| 6 | Reduce environmental stress in animals |
| 7 | Improve animal management systems |
| 8 | Improve animal products (before harvest) |
| 9 | Increase knowledge and decrease incidence of animal diseases |
| 10 | Reduce instances of external parasites and pests of animals |
| 11 | Reduce internal parasites in animals |
| 12 | Identify and reduce toxic chemicals, poisonous plants, naturally occurring toxins, and other hazards affecting animals |
| 13 | Increase animal welfare,/well-being and protection through improved BMPs |

## Outcome #1

### 1. Outcome Measures

Improve reproductive performance of animals

### 2. Associated Institution Types

- 1862 Research

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

### 3c. Qualitative Outcome or Impact Statement

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

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

**Results**
Determining how cattle express differences in RFI based on breed, stage of production, and baseline stress components is critical to determining the physiological and metabolical differences between RFI classes of beef cattle. The potential economic impact, particularily to producers in the southern states that rely on the heat and disease resistance of sub-tropical breeds such as Brahman and Romosinuano, could be significant. Improvements in feed efficiency, resulting in the direct reduction of feed costs, can be an important selection tool that producers can use to increase margins and stay profitable in the commodity driven beef business. In fact, improving efficiency of cattle by 10% will reduce input costs associated with feed, thereby potentially impacting

producers in the SE and Gulf Coast regions significantly. State cow/calf enterprise reports estimate that the cost of feed ranges from $170 to $330 (mean $250) per cow. Therefore, a 10% decrease in feed cost could result in a $25 per cow annual savings or, collectively, producers in the SE and Gulf Coast regions $380 million per year.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 301 | Reproductive Performance of Animals |

## Outcome #2

**1. Outcome Measures**

Improve nutrient utilization in animals

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
Beef cattle, except finishing beef cattle, typically obtain most of their nutrition from forages. There are times, however, beef cattle must receive extra protein and (or) energy nutrition via supplemental feeding. Supplemental feeding is expensive. The use of relatively inexpensive by-products and other non-traditional feedstuffs for supplemental feeding could help to reduce production costs. Trials will be conducted to evaluate the suitability of various by-product/non-traditional feedstuffs (i.e. by-products/substandard products from food manufacturing industry) to provide supplemental protein and (or) energy for beef cattle consuming forage.

**What has been done**
Perennial peanut (Arachsis glabrata) is a warm-season legume that is well adapted to the deep southeastern USA. Hay from this legume appears to have good nutritional value for beef cattle heifer development. Feedstuffs will be evaluated for their suitability to provide supplemental protein and (or) energy for cattle consuming low quality forages. Both growing cattle and mature gestating/lactating beef cows will be utilized.

**Results**
A two year study has recently been completed that evaluated growth performance and age at puberty of yearling beef cattle heifers consuming diets that include selected legume forages versus conventional feed sources. Forty (avg. initial weight of 276 kg) and 62 (291 kg) heifers of mixed breeding (Angus, Gelbvieh, Tuli and/or Brahman) were used for year one and year two, respectively. Within year, the heifers were divided evenly into two groups based on weight and genetic background. One group was fed bermudagrass hay (9 to 11% CP and 53 to 56% TDN) free choice plus a supplement of soybean hulls (12 to 13 % CP, 76 to 89% TDN) fed at 3.6 kg/head/day. The second group was fed the same as group one except approximately 50% of the grass hay was substituted with a legume hay (perennial peanut; Arachis glabrata; 12 to 14% CP and 58 to 62% TDN). The trails started late October each year and ended lat May. During late winter and spring, heifers were taken off hay and supplement, and allowed to graze either annual ryegrass (group one) or ryegrass and clover mixture (red and crimson clover;

group two). Grazing was very limited each year due to drought - 75 and 51 days for years one and two, respectively. The proportion of clover in the pasture forage was small (5 to 35% for year one and 4 to 14% for year two). Blood samples were collected weekly and analyzed for progesterone concentration to determine onset of puberty. Preliminary results indicated that the addition of legume forage slightly improved growth rate (0.72 vs. 0.68 kg/d) but age at puberty appeared to not be affected.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 302 | Nutrient Utilization in Animals |

**Outcome #3**

**1. Outcome Measures**

Improve genetics in animals

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
Accurate prediction of genetic values for economically important traits of purebred and crossbred animals is essential to devise appropriate mating and selection strategies in multibreed populations. This project seeks to develop genetic-economic models and procedures to improve mating and selection strategies in national and international multibreed populations under a variety of environmental conditions.

**What has been done**
New genetic-statistical models will be devised and subsequently tested and validated using simulated, experimental, and field national and international multibreed datasets of various degrees of unbalancedness. New computing algorithms will be incorporated and(or) devised as needed. National and international researchers will collaborate in various stages of the research.

**Results**
1) Less efficient steers (high RFI) had smaller longissimus muscle area (LMA) and higher marbling score (MAR) than more efficient steers (low RFI); 2) Higher % Brahman steers had tougher meat, lighter carcasses, smaller LMA, and lower MAR; 3) Exit velocity had no effect on carcass and meat quality traits; 4) Moderate heritabilities for pre and postweaning growth traits indicate that selection for these traits is feasible in a Colombian Blanco Orejinegro (BON)-Angus-Zebu commercial multibreed population; Calf genetic trends followed sire genetic trends closely suggesting a much higher emphasis on choosing sires than dams replacements; Low heritabilities for age at first calving (AFC) and calving interval suggested that improvements in nutrition and management were needed; A steep negative trend for AFC was likely due to the introduction of Angus and BON sires into the population; 5) Monthly milk yield per cow (MYC) and revenue per cow (MRC) in Thailand was similar across all districts and farm sizes (small, medium, large), except for Pattana Nikhom; Monthly MYC decreased from 2003 to

2007 likely due to insufficient feeding levels, whereas milk quality traits had small favorable improvements; Improving management and health care would be needed to reduce and maintain somatic cell count below recommended maximum levels; 6) Semen quantity and quality was influenced by year-season, ejaculation number, age, ambient temperature, and Holstein fraction in Central Thailand; Bulls that were 75% to 80% Holstein produced higher volume and semen quality than any other group suggesting that a small fraction of Bos indicus genes would be advantageous under Thai tropical conditions;

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 303 | Genetic Improvement of Animals |

**Outcome #4**

**1. Outcome Measures**

Increase knowledge in area of animal genome

Not Reporting on this Outcome Measure

**Outcome #5**

**1. Outcome Measures**

Improve animal physiological processes

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
Substantial embryonic losses occur in cattle during the first month of pregnancy. Approximately 40% of these losses occur at the time when a specific embryonic tissue, termed the trophectoderm, must proliferate and produce sufficient amounts of IFNt so that pregnancy may be maintained. The long-term goal of the proposed research is to elucidate the key physiological, endocrine and molecular mechanisms responsible for conceptus development and the establishment and maintenance of pregnancy in ruminants so that schemes for reducing embryonic losses can be developed in cattle and other domestic ruminants.

**What has been done**
Studies outlined in this proposal focus on determining if FGF-2 supplementation increases conceptus mass and IFNt production at the blastocyst stage (day 7-8 of pregnancy) and at day 16 of pregnancy in cattle. In the first series of studies, bovine conceptuses will be collected at day 16 to 18 of pregnancy and incubated in medium

containing various quantities of FGF-2. Endpoint measurements will include determining IFNt protein secretion into medium and abundance of IFNt mRNA. In a second series of studies, blastocyst stage bovine embryos derived from in vitro maturation, fertilization, and development procedures will be incubated in medium supplemented with FGF-2 or no growth factor treatment. In one study embryos will be evaluated after 48 hours to determine the effect of the embryotrophic factor on cell number, IFNt secretion, and IFNt mRNA abundance. In a follow-up study FGF-2 treated or non-treated embryos will be transferred to recipients and collected 7 days later to determine the effect of FGF-2 on conceptus size and IFNt production.

**Results**
Several changes in knowledge have been generated through this work. First and foremost, it is now evident that hormone production by bovine embryos is affected by culture conditions. Also, providing specific factors (i.e. FGF2) can modify the production of these hormones.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 305 | Animal Physiological Processes |

**Outcome #6**

**1. Outcome Measures**

Reduce environmental stress in animals

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
Heat stress reduces fertility and milk yield of dairy cattle throughout much of the United States. The purpose of the probject is to understand the changes in the cow's physiology when exposed to heat stress and use that information to improving fertility and milk production

**What has been done**
The impact of heat stress on oocyte/ embryonic development and survivability will be characterized to better understand the effects of heat stress around the time of breeding on subsequent conception and calving rates. Embryo transfer experiments will be conducted to determine the efficacy of this treatment for improving fertility during heat stress.

**Results**
A major goal of the work is to improve fertility during the summer. Embryo transfer has been shown to be the most effective way to do so. In the project period, we have improved the quality of embryos for transfer by treating

embryos during the culture period with either CSF-2 or hyaluronan. Another area of interest is finding genetic determinants of heat tolerance at the physiological or cellular level. The finding of breed differences in body temperature regulation provides the impetus for further work to identify genes controlling thermotolerance. Lastly, work comparing the temperature-humidity index with other measures of heat stress has resulted in the knowledge that the index is no more accurate than simpler measures of heat stress such as air temperature, at least under humid conditions. This conclusion will help dairy farmers easily assess the degree of heat stress experienced by their cows.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 301 | Reproductive Performance of Animals |
| 306 | Environmental Stress in Animals |

**Outcome #7**

**1. Outcome Measures**

Improve animal management systems

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
A greater characterization of the nutritive value of grazed forages in Florida is needed. Currently, little published knowledge exists concerning forage quality of Florida bahiagrass pastures. Forage quality data that does exist is composed of forage samples harvested by hand at regular intervals following hay harvest. This data ignores pasture grazing conditions, animal selection, and the plant-animal dynamic. This work would provide research that would enhance production of established subtropical cattle production by developing knowledge for enhanced forage and animal production practices to promote sustainable and productive practices. This work would also develop and deliver information to be utilized in decision support packages to improve production efficiency and integrate forage and cattle variables to implement best management practices to effectively utilize land, labor, and capital resources.

**What has been done**
The overall objective of the research proposed is to increase the management capacity and decision making ability of cattle producers in Florida. There are several specific objectives. The first objective is to characterize the chemical composition of the diet selected by cattle grazing bahiagrass forages located throughout Florida during the year. The second objective is to characterize the rumen degradable and undegradable protein fractions in forage selected by grazing cattle. An additional objective is to compare the nutritive value and protein fractions of forage selected by grazing cattle to forage collected by hand to determine if hand sampling is an adequate method to collect forage for qualitative analysis. The final objective is to model scenarios that incorporate cattle

requirements and characterized forage values to determine appropriate supplements for optimal animal performance

**Results**
With improved nutrient profiling of the available pasture forage that is utilized for grazing, strategic and economical supplementation programs can be implemented. The idea of optimal supplementation is important because stored/supplemental feeds constitute the largest, potentially most variable, and costliest feedstuff for the cow herd. Proper supplementation programs are beneficial; to the cow by providing nutrients in the proper amounts and proportions that are not supplied in the grazed forage, to the producer by optimizing cost outlays for supplement in the form of improved cow performance, and the environment by reducing over-feeding of nutrients, and eliminating supplement and animal waste. A reduction in introduced nutrients into the beef cattle enterprise will be fiscally and environmentally beneficial. Information and production parameters were developed that will assist beef cattle producers to make improved decision regarding forage and supplement utilization. The complex matrix of forage-supplement-cattle was elucidated. Specific recommendations can be generated based upon the data analysis of the heifer development and growing steer research conducted.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 307 | Animal Management Systems |

**Outcome #8**

**1. Outcome Measures**

Improve animal products (before harvest)

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
There are very few federally approved and labelled drugs for use in ornamental aquaculture. Use of bacteriophages to prevent and combat microbial diseases has proven successful, but has not been employed in tropical aquaculture. Tropical aquaculture in Florida relies primarily on non-native species, and the science is lacking on measured impacts when released into the environment or methods for measuring risks and mitigating impacts for producers. Pond technologies in Florida tropical fish production are primitive in relation to other forms of aquaculture. Adoption of modern technologies by producers is dependent largely on providing evidence of positive results including demonstration field days. This project will examine environmental impacts of non-native species in Florida waters and methods for measuring risks of species in production. This project will conduct research and collect data necessary to support federal labels for drugs used in ornamental fish production. This project will initiate a research protocol and progam for use of bacteriophages in tropical aquaculture disease

management. This project will enhance the abilities to test and demonstrate impacts of new pond technologies.

**What has been done**
The Tropical Aquaculture Laboratory (TAL) in Ruskin is an arm of the Department of Fisheries and Aquatic Sciences dedicated to providing research and extension programs for Florida's ornamental aquaculture industry. This project will provide key enhancements to several areas of this effort. Aquatic Animal Health programs include disease diagnosis and research into prevention and cures, including labeling of drugs and chemicals, as well as studying alternative treatment and prevention strategies using probiotics including bacteriophages. This project will provide a research biologist to assist in drug labeling research and reporting to FDA for 3 drugs; Metomidate, Florfenicol, and Slice. Clinical trials performed both at the TAL and on farms will be used to produce necessary efficacy and target animal safety data towards this effort. A post doctoral veterinarian will also be employed with the task of conducting a thorough review of the science and literature surrounding the recent breakthroughs acheived in use of bacteriophages. This review will then be used to develop research designs, facility requirements, and funding sources for such an effort in tropical aquaculture. Start up equipment for studies of non-native aquatic species in the environment will be procured to allow the assistant professor with these duties to perform necessary research. The start-up will include items needed for both field (electrofishing) and laboratory (greenhouse)studies. The fish farm associated with the TAL will be renovated and improved to allow for the cunduction of replicated pond trials of new technologies including aeration and pond feeding and fertilization studies.

**Results**
Faculty are now equipped to perform both field and lab-based studies on non-native aquatic species, and further studies have been funded in large part due to increased capacity. Access to Methyltestosterone as a masculinizing agent for Xiphphorus helleri promises to greatly increase the profitability of this segment of the industry. Successful indexing of Ovaprim will significantly decrease the costs associated with managing this product as an INAD, and allow its use on a wider number of ornamental species.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 308 | Improved Animal Products (Before Harvest) |

**Outcome #9**

**1. Outcome Measures**

Increase knowledge and decrease incidence of animal diseases

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

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

**What has been done**
{No Data Entered}

**Results**
{No Data Entered}

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 311 | Animal Diseases |

**Outcome #10**

**1. Outcome Measures**

Reduce instances of external parasites and pests of animals

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
Today, uncontrolled tick populations and bovine anaplasmosis (BA) in cattle are major concerns among livestock producers in Puerto Rico (PR). The livestock industry, particularly the dairy cattle industry, is continuously facing major economic constraints, which are threatening the stability and the economy of the agricultural sector in the island. Major economic losses include high mortality in adult cattle, abortion, poor growth performance, reduction in milk production, and poor fertility rates. An estimated economic loss of US $20 million was reported in 1989 in PR due to the presence of anaplasmosis, babesiosis, and Boophilus microplus (Canestrini). A.This project will determine the seroprevalence of bovine anaplasmosis among dairy cattle at the herd and individual animal level in Puerto Rico. B. This project will determine spatial patterns and risk factors for bovine anaplasmosis in Puerto Rico. C. This project will determine the distribution of Boophilus microplus, the tick vector for BA, in Puerto Rico. D. The purpose of this study is to learn about the current epidemiology of bovine anaplasmosis (BA) among dairy cattle in Puerto Rico (PR) and to establish national spatio-epidemiological data that may help to formulate and implement efficient and strategic control plans for BA and B. microplus in PR.

**What has been done**
investigate the current epidemiology of bovine anaplasmosis (BA) among dairy cattle in Puerto Rico (PR) and to establish national spatio-epidemiological data that may help to formulate and implement efficient and strategic

control plans for BA and B. microplus in PR. The specific objectives of the project are: OBJECTIVE 1- To determine the serological prevalence of antibodies against Anaplasma marginale among dairy cattle at herd and individual animal levels in Puerto Rico using MSP-5 competitive ELISA. OBJECTIVE 2- To determine spatial patterns for antibody levels against Anaplasma marginale and identify risk factors associated with cattle premises, location, cattle demographics, and management factors, on cluster of bovine anaplasmosis in Puerto Rico by means of geographic information systems and spatial data analyses. OBJECTIVE 3- To determine the influence of ecological factors, temperature, humidity, and type of vegetation, within geographic and agricultural areas of Puerto Rico on the distribution of Boophilus microplus by means of remote satellite imagery.

**Results**
The present study is the first in PR to assess the overall seroprevalence for A. marginale and B. bovis and identify farm management factors significantly associated with high seropositivity. The study sample was limited to adult lactating cattle from commercial dairy farms. Therefore, inferences about the present study might not represent other cattle populations. Serological results indicated that A. marginale and B. bovis are common and widely distributed in PR. Overall seroprevalence for A. marginale and B. bovis in PR was within the lower range documented for other islands in the Caribbean region. Spatial distribution was random suggesting limited influence by geographic predictors. Therefore, management factors appear to be of primary importance in the understanding and control of bovine anaplasmosis and babesiosis in PR. The presence of R. (Boophilus) microplus larvae in PR is determined by the presence of any cattle (beef or dairy) and the landscape habitat conditions, particularly the percent of bushes and shrubs in the site. We suggest that at the time designers of tick and tick-borne disease control programs in PR implement measures to control bovine anaplasmosis and babesiosis they should considered the biology of the tick and the current knowledge of the epidemiology of bovine anaplasmosis and babesiosis.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 312 | External Parasites and Pests of Animals |

**Outcome #11**

**1. Outcome Measures**

Reduce internal parasites in animals

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
In natural and anthropogenic ecosystems, microbial communities play important roles in nutrient cycling, promoting plant growth, and in the removal/sequesteration of toxins and xenobiotics. Bacterial diseases of plants, animals and humans cause millions of dollars in damages. Based on the CDC estimates, over 4 billion cases of diarrhea caused by water- and food-borne bacteria claim lives of over 2 million people worldwide. In Florida, bacterial

pathogens seriously threaten the quality of beaches and recreation areas, citrus and seafood industries. Tourism industry in FL is valued at $50 billion, citrus industry is at $8.5 bln, and the output of the seafood industry is $1.2 bln. Host-associated beneficial bacteria impact Florida economy as well. Beneficial bacteria promote healthy rhizosphere communities and fix atmospheric dinitrogen for both legumes and grasses. The ability to efficiently fix atmospheric nitrogen and supply it to the crops will reduce the need for N fertilizers. Based on the estimates of the Florida Department of Agriculture and Consumer Services, approximately 220,000 tons of Nitrogen-containing fertilizers are applied annually. Plant-associated nitrogen fixing bacteria can provide at least 40% of this nitrogen to their host plants at the "right" time in a "slow release" form. The goal of this study is to understand the role of bacterial cell-to-cell communication in the structuring of host-associated microbial communities. We aim to identify mechanisms that eukaryotes use to interfere with bacterial signaling.

**What has been done**

Objective 1. Identify genes in Sinorhizobium meliloti that are regulated by Quorum Sensing (QS) during symbiotic interactions with its plant host Medicago truncatula. Technically, this Objective will be accomplished in three steps: 1.1) identification of the in vivo QS regulon using RIVET screen 1.2) expression analysis of the QS regulated genes during different stages of symbiosis (candidate genes will be selected based on RIVET screen results, and also on the results of our proteomic studies, and in vitro promoter-trap screening (Gao et al., unpublished) 1.3) interesting genes regulated by QS and/or AHL-mimics will be disrupted, and their symbiotic behavior will be tested. Objective 2. Test the role of QS and host AHL mimics in the timing of symbiotic steps. Because we hypothesize that QS and plant AHL-mimics contribute to the precise timing of the symbiotic events, mutants which are turned ON or OFF at the wrong time or are insensitive to AHLs or plant signals may also prove informative in understanding the role of QS in the symbiosis. By studying the symbiotic behavior of these mutants, we may learn ? for example - that QS is important to controlling proliferation of rhizobia inside the infection thread or nodules. QS may prove central to preventing rhizobia from rupturing host cells and becoming a pathogen. These hypotheses will be tested in three steps: 2.1) QS mutants with altered timing of their expression will be generated, and their behavior in planta will be studied 2.2) the role of host AHL mimics and other host signals in manipulating bacterial QS genes will be assayed. Interesting novel host compounds will be purified. 2.3) disruption of the host AHL-mimic synthesis will be attempted. Objective 3. Identification of other bacterial regulatory pathways subject to manipulation by eukaryotic signals. Control over the interactions of bacteria with their eukaryotic hosts is not limited to QS. Recent high-throughput screens confirmed that other regulators (e.g. two component regulatory system GacS/GacA), as well as novel, uncharacterized genes are required for the interaction of bacteria with their hosts. Learning about the role of the gacS/gacA homologues in the pathogenesis may help to control many devastating and economically important diseases. For example, gacS, gacA homologs are found in Xylella spp and Xanthomonas spp, although their functions in disease are not yet known. Xylella and Xanthomonas pathovars cause citrus diseases (variegated chlorosis and citrus canker, respectively) with the potential to devastate Florida citrus culture.

**Results**

1. Salmonella persistence in non-host environments: To identify promoters that are strongly regulated in Salmonella during colonization of fruits, the promoter libraries were screened after a week-long incubation in tomatoes and constitutive promoters were eliminated after growth in LB and a subsequent FACS sort. The promoter-gfp probes recovered as tomato-specific were sequenced. A comparison of the tomato-regulated genes with the Salmonella genes required for attachment to surfaces of alfalfa sprouts suggests that genes involved in the synthesis of cellulose may be evolutionarily-conserved requirements for plant (but not animal) colonization and infection. These studies indicate that the on-going FACS screen will be a very useful approach for identifying Salmonella genes that are strongly regulated during tomato colonization, and that these genes are likely to have functions that are important to persistence in tomato. To validate the results of the FACS promoter probe experiments, we tested the competitive proliferation of the corresponding mutants within red ripe tomatoes. These results suggest that the set of "tomato-related" Salmonella genes is likely to be different from those that this pathogen uses to colonize abiotic surfaces and invade its animal hosts. This conclusion further supports the proposed mutant screen as a potent approach to the identification of genes that are relevant to persistence in tomato fruits. 2. Coral microbiology In collaboration with Dr. Ritchie, we defined mechanisms by which coral-associated bacteria protect their ecological niche (and hence the endangered A. palmata) from the invasion by opportunistic pathogens. To grow on coral mucus, most Serratia and native coral bacteria activated at least half a dozen of different carbohydrate-degrading enzymes. Coral commensals only digest the terminal residues in mucus, while pathogens seem to preferentially degrade its structural backbone (Krediet et al., 2009a, Krediet et

al., 2009b). Furthermore, when commensals sense that they have begun degrading the mucus backbone, their enzymatic activities stop; this is opposite from coral pathogens which continue degrading mucus backbone and thus acquire direct access to the coral tissues (Krediet et al., 2009a). These results are important because we now understand that commensal and pathogenic bacteria colonize corals with different biochemical strategies. Therefore, it should be possible to target and disrupt undesirable behaviors in multiple pathogens, without significantly affecting native microbiota. β-galactopyranosidase was one of the enzymes involved in the ability of the tested Serratia strains to grow on mucus of A. palmate. The identification of this enzyme is consistent with earlier reports that mucus of Acroporid corals contains a significant proportion of β-galactopyranose. This characterization of enzymes gave us an opportunity to target and disrupt growth of S. marcescens during colonization of the coral.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 313 | Internal Parasites in Animals |

**Outcome #12**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**

Little information is known concerning the weed control spectrum for newly released herbicides in pastures. Additionally, the short term andor long term impacts on forages are unknown. Furthermore, the biology of many of the common weed species found in Florida pastures has not been investigated with regards to growth analysis, seed germination and viability, and total seed production. Invasive weeds are detrimental to pasture productivity, displace native species in natural areas, and reduce visibility in highway rights-of-ways. This project examines the weed control spectrum of herbicides and forage tolerance to herbicides, while relying upon the biology of weedy species to develop management practices for weed control (native and invasive) in pasture and rangeland, natural areas, and highway rights-of-ways.

**What has been done**

The new herbicide, aminocyclopyrachlor (ACP), has been tested for control of weeds in pastures and rights-of-ways. It was observed to provide excellent control Bidens alba, at levels as good or better than aminopyralid. Other projects are underway to better understand bahiagrass and common bermudagrass injury associated with ACP applicaiton. Other experiments were conducted to determine the efficacy of aminopyralid on woody brush control. It was observed that aminopyralid is of limited effectiveness on non-legumeness species such as oak, sweet gum,

and maple.

**Results**
Aminocyclopyrachlor (ACP) was found to be highly effective on a wide variety of annual and perennial weed species. Safety on desirable grasses was negligible in these trials. Therefore, additional research is planned to determine if plant growth regulators can be added to ACP to enhance weed control and minimize the growth potential of desirable grasses - thus reducing the necessity of regular mowing cycles. Numerous trials were completed to determine if aminopyralid, when applied with imazapyr, glyphosate, or triclopyr, would enhance control of woody brush. It was observed that broadcast applications of aminopyralid did not significantly improve brush control over imazapyr or triclopyr alone. Individual plant treatments were equally ineffective. From these data, we will not recommend the use of aminopyralid for control of mixed brush.

### 4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---|---|
| 314 | Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals |

## Outcome #13

### 1. Outcome Measures

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

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 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 lead to large-scale fires. Florida also has other weather extremes such as floods leading to large scale damage especially along coastal regions and rivers that can impact research studies.

Florida has three international shipping ports and four international airports with a new one scheduled to open in 2010. Besides imported goods over 53 million tourists visited annually from around the world. It has been estimated that because of this international influx into the state, we are the entry point for one new invasive plant, pest or disease each week. Any of these external factors can adversly affect the 1862 research outcomes.

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study
- Comparison between locales where the program operates and sites without program intervention

**Evaluation Results**

UF research projects are varied and look at a multitude of issues that affect animals in Florida especially those related to stress, climate and diseases including those related to internal and external parasites and pests. Cattle are an important commodity in Florida and the need to improve productivity and sustainability are of paramount importance. The environment plays an important role in animal production and there are also projects related to integrated pest management systems for Florida livestock and horse operations.
UF research also frequently does studies in other parts of the world on problems such as diseases that may soon impact Florida because of the amount of imported plants, animals and other foodstuff that comes through Florida ports. Researchers often look at international problems that may have some value to problems that have been identified in Florida. For example in the research example listed as a key item below we do not have issues with leopards in Florida but because of the urban sprawl in Florida many mammalian carnivores such as panthers and other wildlife that are presently being impacted by human population growth and expansion into wildlife habitats. Work in these other animals can be used to provide important information for dealing with issues within Florida.

**Key Items of Evaluation**

Mammalian carnivores are critical elements of functioning ecosystems but because they must travel widely to meet their energetic needs they are particularly vulnerable to habitat loss and fragmentation. These concerns are especially relevant to the large-bodied species. My studies are directed at development of an understanding of the landscape-scale patterns and conditions that are favorable for the long-term persistence of mammalian carnivore populations in a changing and human-dominated landscape.

To help conserve endangered and threatened species it is essential to understand their basic ecology. The leopard is under great threat in India from poaching and habitat destruction. Despite being a large charismatic carnivore, little research has done on this species in India. This study provided baseline estimates of prey abundance, which resource managers can use to monitor prey populations. Prey densities are good predictors of carnivore densities. The dietary preference of leopards was illuminated. This study also provided the first rigorous estimate of leopard density for the region. The construction of a predictive habitat model indicated the amount and nature of habitat that is available for the conservation of leopards in south-central Madhya Pradesh. This information will be useful for the conservation authorities in India to help manage leopard populations.

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

**Program # 11**

**1. Name of the Planned Program**

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

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

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---|---|---|---|---|---|
| 501 | New and Improved Food Processing Technologies | 20% | 20% | 20% | |
| 502 | New and Improved Food Products | 20% | 20% | 20% | |
| 503 | Quality Maintenance in Storing and Marketing Food Products | 20% | 20% | 20% | |
| 504 | Home and Commercial Food Service | 5% | 5% | 5% | |
| 511 | New and Improved Non-Food Products and Processes | 15% | 15% | 15% | |
| 512 | Quality Maintenance in Storing and Marketing Non-Food Products | 20% | 20% | 20% | |
| | **Total** | 100% | 100% | 100% | |

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

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

| Year: 2009 | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 0.0 | 0.0 | 12.0 | 0.0 |
| Actual | 0.0 | 0.0 | 8.6 | 0.0 |

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

| Extension | | Research | |
|---|---|---|---|
| **Smith-Lever 3b & 3c** | **1890 Extension** | **Hatch** | **Evans-Allen** |
| 0 | 0 | 262251 | 0 |
| **1862 Matching** | **1890 Matching** | **1862 Matching** | **1890 Matching** |
| 0 | 0 | 262251 | 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 •Partner •Work with stakeholders in processing areas to create and construct research facilities

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

State, national and international stakeholders affected by food and non-food developing, processing, quality and delivery.These may include but are not limited to:
•producers •regulatory bodies •consumer groups

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

**1. Standard output measures**

| 2009 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---|---|---|---|---|
| **Plan** | 0 | 0 | 0 | 0 |
| **Actual** | 0 | 0 | 0 | 0 |

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

Year: 2009
Plan: 1
Actual: 3

**Patents listed**
Meat Quality and Shelf-Life with Dietary Astaxanthin Supplementation
Xylan-Utilization Regulon for Efficient Bioprocessing of Hemicellulose
Materials and Methods for the Efficient Produciton of Acetate and Other Products

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

**Number of Peer Reviewed Publications**

| 2009 | Extension | Research | Total |
|---|---|---|---|
| **Plan** | 0 | 25 | |
| **Actual** | 0 | 30 | 30 |

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

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

## V. State Defined Outcomes Table of Content

| O. No. | OUTCOME NAME |
|---|---|
| 1 | Develop new and improved food processing techniques |
| 2 | Develop new and improved food products |
| 3 | Improve quality maintance in storing and marketing food products |
| 4 | Develop new and improved non-food products and processes |
| 5 | Develop Quality maintenance methods in storing and marketing non-food products |

## Outcome #1

### 1. Outcome Measures

Develop new and improved food processing techniques

### 2. Associated Institution Types

- 1862 Research

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
Off-flavors and flavor degradation are major causes of consumer complaints which result in reduced consumption and purchases of healthful fruit and vegetable juices such as orange and carrot juices. Almost all prior attempts to improve flavor quality of fruit and vegetable juices have involved the identification of the positive attributes and ways of increasing them through breeding or fortification. This study turns the quality question upside down and examines the features which degrade quality; i.e., the production of off-flavors and loss of desirable compounds. Since many off-flavors are potent sulfur compounds, a major emphasis of this study will be the examination of sulfur compounds as off-flavors. Few sulfur aroma components have been examined in the past because they are difficult or impossible to measure. Newer technologies have allowed the detection of these undesirable compounds at the levels where they have a negative aroma impact. Off-flavors will be characterized using human assessors using commonly accepted sensory language. Reduction or elimination of common off-flavors will be accomplished by identifying the processes which produce them.

**What has been done**
The primary approach in this project is to improve overall flavor quality of fruit and vegetable juices by reducing the incidence and severity of off-flavored products that consumers might experience. Gas chromatography-olfactometry will be employed to separate and characterize the causative off-flavor compounds. Final chemical identification will be accomplished using mass spectrometry. Sensory thresholds for these quality degrading compounds will be established in each product. Off-flavor reaction pathways will be determined to identify precursors and conditions which influence concentrations of off-flavors. A secondary approach to improve overall quality is to stabilize or minimize the decomposition of compounds responsible for desirable flavor by determining decomposition pathways and conditions necessary to slow these reactions.

**Results**
Sulfur volatiles have been difficult to detect because they are present in such ultra trace concentrations in citrus juices. Sensory guided GC-olfactory experiments had indicated the presence of potent aroma volatiles at chromatographic times for which normal (FID and TIC-MS)instrumental responses were unresponsive. We have identified many of these using a specialized sulfur detector and found that compounds like methional and dimethyl sulfide can greatly reduce the flavor quality of citrus juices. We are continuing this work to determine how these compounds are formed and what steps can be taken to reduce their impact.

### 4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---|---|
| 501 | New and Improved Food Processing Technologies |

**Outcome #2**

**1. Outcome Measures**

Develop new and improved food products

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
The US food processing industry must respond to the growing consumer demand for foods that fulfill their nutritional needs and expectations. To address the increased demands for these products, new and existing process technologies must rise to the challenge and play a pivotal role in the improvement of the quality of value-added agricultural and food production. The development of such processes requires new knowledge of food properties, the response of the quality attributes in foods to thermal and non-thermal processes, models defining heat, mass, and momentum transfer, process control via sensor development, and systems that ensure food safety. The overall purpose of this project is to address the increased desire for new food products, new packaging, more convenience, new delivery systems, and safer and more nutritious foods at lower cost. During the next 5-year cycle, research into traditional processes (e.g., microwaving, canning) will continue, but the emphasis will shift to non-traditional processing. A whole new body of knowledge is required by integration of engineering principles with molecular biology, biochemistry and microbiology. Thus, the need for biophysical properties, understanding of transport processes in biological systems and scale-up from the molecular scale. Modeling is playing increasing roles in both design and research in industry as well as in academia. Relevant information related to microbial death kinetics for alternative processes is being collected and evaluated.

**What has been done**
The Florida station will participate in studies to understand gas transport mechanisms occurring in food packaging, such as oxygen transmission through irradiated packages and water vapor permeability in novel bio-based food packaging. 2. Successful retorting of shelf-stable foods in semi-rigid trays requires that they be sealed with minimum non-condensable gas before entering the retort. This precludes entry to the market with retortable trays containing individual solid pieces with little or no liquid sauce or gravy. The FL station will address this problem by developing new methods for sealing retortable trays with such products. 3. The FL station will join an existing modeling subcommittee (CA, NC, NY-I, MI, OH and TX stations) in continuing working toward finding ways to disseminate awareness, description and access by the scientific community for utilization of the many models already developed by the various collaborating member stations of NC-1023. 4. The FL station will be attempting to develop models capable of predicting internal pressures to be expected in response to various filling and sealing conditions, strength of package material, and retorting conditions.

**Results**

Results from this research will enable food processors to provide a range of new value-added convenience food products in the form of ready-to-eat shelf stable meals in microwaveable plastic trays and bowls. The ability to measure and predict internal pressure build-up during thermal processing in retorts will reveal the pressure differential that would cause package distortion in the case of these flexible package systems. These findings will enable food processors to determine precise overriding retort pressure profiles needed to prevent package distortion during retort processing.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 502 | New and Improved Food Products |

**Outcome #3**

**1. Outcome Measures**

Improve quality maintance in storing and marketing food products

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

**Issue (Who cares and Why)**
Postharvest losses of fresh-cut produce are difficult to estimate but given the highly perishable nature of fresh-cuts compared to intact produce, the retail value of fresh-cut produce losses may exceed $1 billion annually. The appearance, convenience, and generally high nutritive value of fresh-cut vegetables and fruits are bringing about increased sales of fresh produce, but repeat sales of the fresh-cuts is dependent upon assurance of its safety and the products having pleasing texture and flavor. There is a need for developing more effective handling procedures and innovative, new technologies for maintaining quality and shelf stability of fresh-cut products. The purpose of this research is to contribute detailed scientific information relating physiology in diverse plant tissues to their quality and shelf stability and provide alternative strategies to the U.S. fresh-cut industry to control deterioration. Improved appearance, taste and other quality characteristics combined with increased shelf-life will likely result in improved nutritional benefits to consumers and decreased postharvest losses to the U.S. fresh-cut industry.

**What has been done**
Experiments were conducted to determine the optimum procedures for preparation and handling of fresh-cut mango and to determine if chilling injury at common handling temperatures affects fresh-cut mango quality and shelf life. Experiments were conducted to determine the best practices for application of aqueous 1-methylcyclopropene (1-MCP) to tomato and carambola fruit and the effects of 1-MCP on fruit ripening including aroma volatile synthesis were measured.

**Results**
Optimum ripeness stage for preparation of fresh-cut mango was determined to be best measured by flesh firmness. The impacts of the hot water treatment used for insect quarantine treatment and low (5 degrees C)

handling temperature of the fresh-cut product were shown to not have significant effects on fresh-cut mango shelf life. Use of aqueous formulation of 1-MCP, an ethylene action antagonist, was optimized in tomato and carambola fruit. 1-MCP delays ethylene-related quality changes that shorten fresh-cut fruit shelf life.

**4. Associated Knowledge Areas**

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

**Outcome #4**

**1. Outcome Measures**

Develop new and improved non-food products and processes

Not Reporting on this Outcome Measure

**Outcome #5**

**1. Outcome Measures**

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

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 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 lead to large-scale fires. Florida also has other weather extremes such as floods leading to large scale damage especially along coastal regions and rivers that can impact research studies.

Florida has three international shipping ports and four international airports with a new one scheduled to open in 2010. Besides imported goods over 53 million tourists visited annually from around the world. It has been estimated that because of this international influx into the state, we are the entry point for one new invasive plant, pest or disease each week. Any of these external factors can adversly affect the 1862 research outcomes.

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.

**Evaluation Results**

Florida research includes research in increasing efficiency and decreasing labor in both agricultural and forestry production. Also included is research in recycling and reuse of animal waste and other materials related to farming. Florida has built technology systems that enhance agricultural efforts and determine accurate and precise standards of measurement such as FAWN which provides exact weather temperatures for citrus and vegetable producers and helps save millions of dollars in heating costs to protect crops and animals.

**Key Items of Evaluation**

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

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

The results of this research have resulted in an acceptable and nutritious product that is assisting in meeting the dietary needs of Haitian children in remote villages. This research has and will continue to have significant economic and health impacts on Haiti and other under-developed countries, as well as developed countries.

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

**Program # 12**

**1. Name of the Planned Program**

Economics, Markets and Policy--research

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

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---|---|---|---|---|---|
| 601 | Economics of Agricultural Production and Farm Management | 10% | 10% | 10% | |
| 603 | Market Economics | 20% | 20% | 20% | |
| 604 | Marketing and Distribution Practices | 20% | 20% | 20% | |
| 605 | Natural Resource and Environmental Economics | 10% | 10% | 10% | |
| 606 | International Trade and Development | 10% | 10% | 10% | |
| 607 | Consumer Economics | 10% | 10% | 10% | |
| 609 | Economic Theory and Methods | 10% | 10% | 10% | |
| 610 | Domestic Policy Analysis | 10% | 10% | 10% | |
| | **Total** | 100% | 100% | 100% | |

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

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

| Year: 2009 | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 0.0 | 0.0 | 12.4 | 0.0 |
| Actual | 0.0 | 0.0 | 6.5 | 0.0 |

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

| Extension | | Research | |
|---|---|---|---|
| **Smith-Lever 3b & 3c** | **1890 Extension** | **Hatch** | **Evans-Allen** |
| 0 | 0 | 200419 | 0 |
| **1862 Matching** | **1890 Matching** | **1862 Matching** | **1890 Matching** |
| 0 | 0 | 200419 | 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
- Partnering on an international level

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

international:
•Agribusiness •producers •policy makers (county, state, regional, national, international

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

**1. Standard output measures**

| 2009 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---|---|---|---|---|
| **Plan** | 0 | 0 | 0 | 0 |
| **Actual** | 0 | 0 | 0 | 0 |

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

Year: 2009
Plan: 1
Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

| 2009 | Extension | Research | Total |
|---|---|---|---|
| **Plan** | 0 | 55 | |
| **Actual** | 0 | 35 | 0 |

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

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

## V. State Defined Outcomes Table of Content

| O. No. | OUTCOME NAME |
|---|---|
| 1 | Provide economic analysis of issues confronting Florida stakeholders including assessment of the competitive position of Florida crops in the international market place. |
| 2 | Research factors that influence consumers' subjective perceptions about food consumption that will allow agribusiness, ag producers, and policy makers to respond more effectivley to consumer and producer concerns |
| 3 | Understand and develop policy necessary for improved development of international trade |

## Outcome #1

### 1. Outcome Measures

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

### 2. Associated Institution Types

- 1862 Extension
- 1862 Research

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
This research and extension program sought to provide information on the role and economic contribution of agricultural, natural resources industries and amenity-based services and activities on the economy of Florida. Economic impact analysis is an important tool for assessment of the structure, role and contribution of industries, activities and events, and for evaluation of the benefits of economic development projects and policies.

**What has been done**
Work in this area relies upon the use of input-output models constructed with the Implan Professional software and associated databases, which represent the structure of regional economies, and provides economic multipliers to estimate the secondary impacts of industry purchases and employee household consumer spending. Analyses were conducted using the IMPLAN Professional software and associated databases (MIG, Inc). Results were typically presented in terms of changes in employment (full and part-time jobs), output (revenues), value added (income), and indirect business taxes. Projects were generally conducted with sponsored research funding or upon special request by qualified interest groups.

**Results**
The primary outcome of this project is a greater awareness and understanding by government regulators, policy-makers, and the public at large about the economic importance of agriculture and natural resources and the role of these industries in local economic development. Feedback by sponsors and other clientele indicate that this information has been valuable for gaining public recognition and support, and for informing policy discussions concerning issues such as labor, land use, water quality, pesticide regulation, and international trade. The large number of accessions of electronic documents available indicate that this information is frequently sought by clientele.

### 4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---|---|
| 601 | Economics of Agricultural Production and Farm Management |
| 603 | Market Economics |
| 604 | Marketing and Distribution Practices |
| 605 | Natural Resource and Environmental Economics |

| | |
|---|---|
| 606 | International Trade and Development |
| 607 | Consumer Economics |
| 610 | Domestic Policy Analysis |

**Outcome #2**

**1. Outcome Measures**

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

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

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

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

**What has been done**
{No Data Entered}

**Results**
{No Data Entered}

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 601 | Economics of Agricultural Production and Farm Management |
| 603 | Market Economics |
| 604 | Marketing and Distribution Practices |
| 607 | Consumer Economics |
| 609 | Economic Theory and Methods |
| 610 | Domestic Policy Analysis |

## Outcome #3

### 1. Outcome Measures

Understand and develop policy necessary for improved development of international trade

### 2. Associated Institution Types

- 1862 Research

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**

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

**What has been done**

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

**Results**

Much research is under the categories of international agricultural economics and applied econometrics. Within these categories, I have focused my research efforts in five related areas: international consumption patterns for foods and other consumption goods; international agricultural trade and development policy; import demand analyses, particularly for specialty crops important to Florida and the United States; and the effects of custom unions on small island economies; and convergence or divergence of cross-country income levels over time. International Consumption Patterns. Few studies exist on cross-country consumption patterns. The main reason is the difficulty of obtaining consistent consumption data over a large number of economically diverse nations. This research estimates the demand for consumption goods including food and food items among a large number of countries. In my most recent publications in this area, income and price elasticities of demand have been calculated and reported for nine broad categories of goods (including aggregate food) and eight subcategories of food (e.g., meats, dairy, grains). These research results are available online and are maintained by the Economic Research Service (ERS), USDA, and the international consumer demand estimates are currently being used by the ERS, USDA at website. Results from this study were used by the Interagency Agricultural Projections

Committee for its publication, USDA Agricultural Baseline Projections to 2011. The most widely used Computable General Equilibrium model in the world, the GTAP-AGR model, keys on our own-price and income elasticities of demand for food and calibrates the parameters of the GTAP CDE demand system to the elasticities for our eight food aggregates and an additional non-food aggregate. International Agricultural Trade and Development Policy. The world sugar market and its effects on U.S. consumers and domestic sugar producers is a primary focus of my research in this area. Another issue of current policy relevance pertains to the so-called "Byrd Amendment" that returns collected tariff revenues to producers and processors who successfully litigate antidumping or countervailing duty cases. Nutrition is particularly important to low income countries and their people. One way to improve the nutrient intake of low income people is through the development and distribution of biofortified cereals and other food products. Import Demand Analyses for Agricultural Products. Import demand analyses are particularly useful in answering the question of allocation of import shares among supplying countries when the import market grows due to relaxation of quota restrictions or to income growth. Import demand for all specialty crops important to U.S. exporters in all major export markets was estimated and reported. Small Island Economies. The welfare of small island countries is dependent on international trade. The unions or agreements have both positive and negative welfare consequences. The Caricom countries of the Caribbean formed a custom union over two decades ago and it is important to document the cost and benefits of this arrangement.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 606 | International Trade and Development |
| 609 | Economic Theory and Methods |
| 610 | Domestic Policy Analysis |

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

**External factors which affected outcomes**

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

**Brief Explanation**

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 lead to large-scale fires. Florida also has other weather extremes such as floods leading to large scale damage especially along coastal regions and rivers that can impact research studies.

Florida has three international shipping ports and four international airports with a new one scheduled to open in 2010. Besides imported goods over 53 million tourists visited annually from around the world. It has been estimated that because of this international influx into the state, we are the entry point for one new invasive plant, pest or disease each week. Any of these external factors can adversly affect the 1862 research outcomes.

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Comparison between locales where the program operates and sites without program intervention

**Evaluation Results**

The work done through UF research on economic analysis, study of markets and policy helps farmers and producers and others involved in agriculture to make the best economic choices by giving them access to the information they need to be more profitable while minimizing production risks.

**Key Items of Evaluation**

Changes in Citrus Production Costs Tracking and publishing updated citrus production costs that reflect significant changes is important to growers' decision-making process, particularly budgeting and planning. This information was discussed individually with growers, presented at the Indian River Citrus Seminar, published in the UF/IFAS EDIS and made available on CREC web pages. Greening Survey The results of the greening survey were written into an article published in the October, 2009 issue of Citrus Industry Magazine and another article on this survey was published in EDIS in December. Results of the survey have also been discussed in meetings with 22 growers and 42 faculty and extension agents. Information from this survey will provide information to help assess the magnitude of the greening problem, assist in tracking the success of management efforts to control the disease, provide leading indicators of the situation in regions where it is most wide-spread, and enable better forecasts of future infection rates, fruit production and prices. The survey results also help determine the long-run impact of endemic greening on the Florida citrus industry and its size and economic footprint in Florida. The survey also supports planting and marketing decisions by growers, fruit procurement and capacity utilization decisions by processors and packers, lending decisions by financial institutions, and marketing decisions by input suppliers. Survey results can also be used by organizations like the Florida Department of Citrus, IFAS and USDA/ARS to support research funding decisions, and by state and federal legislators to help make policy decisions. The greening survey to cover the 2008/09 season is already underway, and should help assess the rate at which greening is spreading. Changes Between Retail Orange Juice and Orange Prices The information about the changed relationship between retail orange juice prices and orange prices, and its negative impact on orange prices was communicated to growers at the Florida Citrus Expo in August of 2009, where about 500 growers were in attendance, one-on-one in meetings with 22 growers. Growers have no control over increased pricing power by retailers. However, the do have some control over orange juice demand with the generic advertising they fund. Consequently, now growers are in favor of increasing the funding for the generic advertising program.

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

**Program # 13**

### 1. Name of the Planned Program

Human Nutrition, Food Safety, and Human Health--research

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

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---|---|---|---|---|---|
| 702 | Requirements and Function of Nutrients and Other Food Components | 20% | 20% | 20% | |
| 703 | Nutrition Education and Behavior | 20% | 20% | 20% | |
| 712 | Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins | 20% | 20% | 20% | |
| 721 | Insects and Other Pests Affecting Humans | 10% | 10% | 10% | |
| 722 | Zoonotic Diseases and Parasites Affecting Humans | 10% | 10% | 10% | |
| 723 | Hazards to Human Health and Safety | 20% | 20% | 20% | |
| | **Total** | 100% | 100% | 100% | |

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

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

| Year: 2009 | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 0.0 | 0.0 | 22.0 | 0.0 |
| Actual | 0.0 | 0.0 | 6.0 | 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 | 184276 | 0 |
| **1862 Matching** | **1890 Matching** | **1862 Matching** | **1890 Matching** |
| 0 | 0 | 184276 | 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

- Partnering

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

•Food Industry •General public •regulatory agencies

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

**1. Standard output measures**

| 2009 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---|---|---|---|---|
| **Plan** | 0 | 0 | 0 | 0 |
| **Actual** | 0 | 0 | 0 | 0 |

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

Year: 2009
Plan: 1
Actual: 2

**Patents listed**
Lactobacillus Supplement for Alleviating Type 1 Diabetes
Control of Mosquito Larvae with Bti Toxins and TMOF

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

**Number of Peer Reviewed Publications**

| 2009 | Extension | Research | Total |
|---|---|---|---|
| **Plan** | 0 | 20 | |
| **Actual** | 0 | 93 | 93 |

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

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

## V. State Defined Outcomes Table of Content

| O. No. | OUTCOME NAME |
|---|---|
| 1 | Research in the area of human nutrition, food safety, and human health and well-being addresses problems and opportunities important to the food industry and quality of life in Florida and throughout the world |

## Outcome #1

### 1. Outcome Measures

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

### 2. Associated Institution Types

- 1862 Research

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
The ability to manipulate immune function with nutrition offers substantial benefits. Furthermore, data involving the nutrient arginine is controversial and requires further investigation since many current nutritional formulas include arginine. The primary objective of our studies is to investigate the ability of nutrition to enhance immune function and provide positive clinical outcomes.

**What has been done**
Human and animal trials were conducted related to this project. Findings from these studies were presented at local, state, national, and international conferences for health care providers and Cooperative Extension agents. Presentations included paper and poster presentations as well as invited seminars.

**Results**
Malnutrition assessed by the Mini Nutritional Assessment is associated with decreased immune function. Specific nutrients also impact immune function. In the case of dietary arginine it is arginine deficiency that has the bigger impact on immune function. Arginine supplementation above that found in the American diet may be detrimental in some instances. Knowledge from these studies has contributed to a change in health care practice through evidence based medicine.

### 4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---|---|
| 702 | Requirements and Function of Nutrients and Other Food Components |
| 703 | Nutrition Education and Behavior |
| 712 | Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins |
| 723 | Hazards to Human Health and Safety |

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

**External factors which affected outcomes**

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

**Brief Explanation**

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 lead to large-scale fires. Florida also has other weather extremes such as floods leading to large scale damage especially along coastal regions and rivers that can impact research studies.

Florida has three international shipping ports and four international airports with a new one scheduled to open in 2010. Besides imported goods over 53 million tourists visited annually from around the world. It has been estimated that because of this international influx into the state, we are the entry point for one new invasive plant, pest or disease each week. Any of these external factors can adversly affect the 1862 research outcomes.

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study
- Comparison between locales where the program operates and sites without program intervention

**Evaluation Results**

Understanding human nutrition is very important. The effects of additives are often not know in foods and research in this area can make a critical difference in human health. UF does studies that frequently impact pregnancy and expectant mothers along with more general needs. Food safety and human health are also areas that are of extreme importance. Next year food safety will be included in this report as a separate program.

**Key Items of Evaluation**

The ability to manipulate immune function with nutrition offers substantial benefits. Furthermore, data involving the nutrient arginine is controversial and requires further investigation since many current nutritional formulas include arginine. The primary objective of our studies is to investigate the ability of nutrition to enhance immune function and provide positive clinical outcomes. This study examined the nutrient intake and clinical outcomes in women during pregnancy and examined the interaction among

nutrients, immune function and clinical outcomes.

Malnutrition assessed by the Mini Nutritional Assessment is associated with decreased immune function. Specific nutrients also impact immune function. In the case of dietary arginine it is arginine deficiency that has the bigger impact on immune function. Arginine supplementation above that found in the American diet may be detrimental in some instances. Knowledge from these studies has contributed to a change in health care practice through evidence based medicine.

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

**Program # 14**

**1. Name of the Planned Program**

Families, Youth. and Communities--research

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

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---|---|---|---|---|---|
| 802 | Human Development and Family Well-Being | 0% | 0% | 50% | |
| 806 | Youth Development | 0% | 0% | 50% | |
| | **Total** | 0% | 0% | 100% | |

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

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

| Year: 2009 | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 0.0 | 0.0 | 0.5 | 0.0 |
| Actual | 0.0 | 0.0 | 1.1 | 0.0 |

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

| Extension | | Research | |
|---|---|---|---|
| **Smith-Lever 3b & 3c** | **1890 Extension** | **Hatch** | **Evans-Allen** |
| 0 | 0 | 33504 | 0 |
| **1862 Matching** | **1890 Matching** | **1862 Matching** | **1890 Matching** |
| 0 | 0 | 33504 | 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**

N/A

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

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

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

### 1. Standard output measures

| 2009 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---|---|---|---|---|
| Plan | 0 | 0 | 0 | 0 |
| Actual | 0 | 0 | 0 | 0 |

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

**Patent Applications Submitted**

Year: 2009
Plan: 0
Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

| 2009 | Extension | Research | Total |
|---|---|---|---|
| Plan | 0 | 25 | |
| Actual | 0 | 9 | 9 |

## 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 | Access knowledge, attitudes and skills of Florida youth/adult partnerships |
| 3 | Increase economic stability within the family unit |

## Outcome #1

### 1. Outcome Measures

Decrease crime and violence in youth populations

### 2. Associated Institution Types

- 1862 Research

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | 0 | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
Young people differ in terms of their individual assets, resources, social supports and networks, which all have important bearings on how they develop and become involved in rural communities. A direct need exists for program and policy interests to better understand the role assets play in meeting the needs of as they navigate through contextual layers and social contexts, toward positive development. This is particularly true in rural farm, non-farm and less developed coastal areas throughout Florida. With the additional infrastructure stress of hurricane related variables, it is important to consider how to offset potential risks of Florida's youth by identifying current and needed assets toward promoting a positive developmental trajectory. In this regard, Florida's youth may have a more likely chance of remaining in the State if they are more involved within their local communities while growing up. This study will examine developmental assets of rural youth as identified by the Search Institute Developmental Asset Profile (DAP), which will be administered to youth in local schools, after-school programs and organizations in rural Florida communities. Youth assets identified on the DAP will be analyzed by four external asset categories (Support, Empowerment, Boundaries and Expectations, Constructive Use of Time); four internal asset categories (Commitment to Learning, Positive Values, Social Competencies, Positive Identity) and five social contexts (Personal Assets, Social Assets, Family Assets, School Assets and Community Assets).

**What has been done**
1a. Conduct a comprehensive review of academic and professional literature. Step 1b. Identify two to four rural Florida counties for extensive onsite research. Step 2. Conduct an examination of youth developmental assets within rural communities. Step 3. The five social contexts will need to be explored through a comprehensive literature review. The analysis of assets in specific social contexts will provide a profile of the individual rural community efforts toward building youth developmental assets for positive youth and community outcomes, specifically related to youth involvement in their local communities. Step 4. Conduct an analysis of assets to determine differences by age, gender, household size and rural location type. Step 5. Conduct an examination of youth developmental assets between the four communities and synthesize data to compare results and determine whether any significant differences exist. his year of the Project focused on Objectives 02 and 03.

**Results**
The Search Institute Developmental Asset Profile (DAP)was used to examine developmental assets of youth in four rural counties. Initially, analysis has focused on those youth in an after-school program funded by CYFAR. At this point, analysis began to find positive outcomes for the youth as a result of the program. In particular, the data analysis discovered that at-risk youth had very high developmental assets when compared with national norms. This is a particularly good sign that the program has had major impacts on the youth. When analyzed for specific

outcomes, youth were found to have gained in several social emotional aspects of development. In particular, youth in both programs had significant increases in the areas of self-respect, respect for others, respect for teachers and respect for parents. For at-risk youth, this was one of the most powerful impacts from the after-school program. This interesting use of the survey and results has been impactful for both this research project as well as the after-school project. After school programmers and researchers across the country have been interested in this aspect of the research. Analysis will continue to explore next all youth in the data set, not only those who are enrolled in after-school programs, to explore their county profiles as well as county differences and other aspects of the variables.

**4. Associated Knowledge Areas**

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

**Outcome #2**

**1. Outcome Measures**

Access knowledge, attitudes and skills of Florida youth/adult partnerships

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | {No Data Entered} | 0 |

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

**Issue (Who cares and Why)**
Historically, adults have not embraced youth input for decision-making, problem-solving or taking action in organizations and communities. Historically, youth have not shared the power, nor the responsibility for organizational and community decisions and policies. Individuals who are not engaged in finding solutions can easily become part of the problem. Youth and teens have resources that are not frequently tapped or fully engaged in finding solutions in organizations and communities. The purpose of this research is to: assess the status of attitudes, knowledge and skills of youth and adults as they begin an experience in youth/adult partnerships in civic engagement; administer an educational variable; assess the effectiveness of the education; reassess the status of attitudes, knowledge and skills of youth and adults in partnerships in civic engagement; and determine the resulting changes in individuals, organizations and communities.

**What has been done**
This research will build on what has been learned through the National 4-H Council; Innovation Center for Community and Youth Development; National 4-H Youth Development Council for Leadership Team and youth/adult partnership projects in other states. The study will be conducted statewide in at least 30 Florida counties. Each county may have have one or more groups in the project. Initially, 4-H members will be the youth audience focus for the study. The adult audience will focus on, but not be limited to: Extension Advisory Boards; County Extension Leadership Teams; county fair boards; Farm Bureau boards; parks and recreation boards; or environmental groups. A pre-test and post-test will assess knowlegde, attitudes and skills. Formative and

summative evaluation will be used to determine the effectivenss of the educational Extension program. Researcher observation, semi-structured interviews and participant self-report will identify best practices for partnerships in governance, and will provide units of meaning that describe individual and/or community transformations that occur.

**Results**
The twenty-two (22) youth respondents showed significant gains in leadership (Z=-3.785, p each predictor of youth community involvement. Individually, all conceptual areas played a role in shaping community involvement. Community attachment and motivations for action were the greatest predictors of youth community involvement (R2=.20 and .14 respectively). The community attachment variables representing interest in the community and sense of feeling at home were both positively related to youth community involvement. The same was true for the motivations index. Other variables positively related to youth community involvement were length of residence, household income, interacting with others through clubs & groups, and the impacts belief scale. Alternatively four variables were negatively related to youth community involvement. They were urban/rural location, the obstacle of intimidation, lack of youth voting powers as a barrier and lack of time as a barrier. These indicated that as community size grows, involvement in the community decreases. In the same way, as lack of voting power, intimidation and available time diminishes, a youth's likelihood to be involved in the community declines. Community Decision Making Roles: The results of the internet & phone surveys showed that approximately one-third of the partners were able to secure a community role on a board, council or committee. The number of community roles acquired had a range of 1-5 while the mean was 2.75. The variety of boards included county Extension boards, councils and committees, community boards, religious group boards and local and regional government boards.

**4. Associated Knowledge Areas**

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

**Outcome #3**

**1. Outcome Measures**

Increase economic stability within the family unit

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | {No Data Entered} | 0 |

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

**Issue (Who cares and Why)**
Several emerging family economics issues exist. Communities and families today face critical economic issues in increasingly complex and diverse environments. Rural and urban families struggle to maintain economic stability in a changing economy. The population is aging and becoming more racially and ethnically diverse. Financial concerns exist across the lifespan. Young adults face escalating costs of higher education, increasing

indebtedness, and a rising number of bankruptcies. Midlife adults and elders are concerned with retirement income adequacy, rising health care costs, and management of elder care. A major purpose of this committee is facilitating collaboration among family economics researchers nationally and internationally. The committee provides a forum to examine research methodology and family economic issues in depth from a multidisciplinary perspective. The committee fosters development of research related to the economic well-being of individuals and families that is of interest to multiple institutions around the nation. For example, this committee recently served as a catalyst to launch two major regional research projects, NC 1011: Rural Low-Income Families: Tracking their Well-being and Function in an Era of Welfare Reform, and NC 1013: The Economic and Psychological Determinants of Household Savings.

**What has been done**

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

**Results**

### 4. Associated Knowledge Areas

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

## 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 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 lead to large-scale fires. Florida also has other weather extremes such as floods leading to large scale damage especially along coastal regions and rivers that can impact research studies.

Florida has three international shipping ports and four international airports with a new one scheduled to open in 2010. Besides imported goods over 53 million tourists visited annually from around the world. It has been estimated that because of this international influx into the state, we are the entry point for one new invasive plant, pest or disease each week. Any of these external factors can adversly affect the 1862 research outcomes.

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants

**Evaluation Results**

One area of interest for Florida research is presently looking at ways to understand youth better and provide competencies they need to live a healthy more productive life. It also looks at competencies that will lead them into future leadership roles.

**Key Items of Evaluation**

Young people differ in terms of their individual assets, resources, social supports and networks, which all have important bearings on how they develop and become involved in rural communities. A direct need exists for program and policy interests to better understand the role assets play in meeting the needs of as they navigate through contextual layers and social contexts, toward positive development. This is particularly true in rural farm, non-farm and less developed coastal areas throughout Florida. With the additional infrastructure stress of hurricane related variables, it is important to consider how to offset potential risks of Florida's youth by identifying current and needed assets toward promoting a positive developmental trajectory. In this regard, Florida's youth may have a more likely chance of remaining in the State if they are more involved within their local communities while growing up. This study will examine developmental assets of rural youth as identified by the Search Institute Developmental Asset Profile (DAP), which will be administered to youth in local schools, after-school programs and organizations in rural Florida communities. Youth assets identified on the DAP will be analyzed by four external asset categories (Support, Empowerment, Boundaries and Expectations, Constructive Use of Time); four internal asset categories (Commitment to Learning, Positive Values, Social Competencies, Positive Identity) and five social contexts (Personal Assets, Social Assets, Family Assets, School Assets and Community Assets).

The Search Institute Developmental Asset Profile (DAP)was used to examine developmental assets of youth in four rural counties. Initially, analysis has focused on those youth in an after-school program funded by CYFAR. At this point, analysis began to find positive outcomes for the youth as a result of the program. In particular, the data analysis discovered that at-risk youth had very high developmental assets when compared with national norms. This is a particularly good sign that the program has had major impacts on the youth. When analyzed for specific outcomes, youth were found to have gained in several social emotional aspects of development. In particular, youth in both programs had significant increases in the areas of self-respect, respect for others, respect for teachers and respect for parents. For at-risk youth, this was one of the most powerful impacts from the after-school program. This interesting use of the survey and results has been impactful for both this research project as well as the after-school project. After school programmers and researchers across the country have been interested in this aspect of the research. Analysis will continue to explore next all youth in the data set, not only those who are enrolled in after-school programs, to explore their county profiles as well as county differences and other aspects of the variables.

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

**Program # 15**

**1. Name of the Planned Program**

Agricultural, Natural Resource, and Biological Engineering--research

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

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---|---|---|---|---|---|
| 401 | Structures, Facilities, and General Purpose Farm Supplies | 0% | 0% | 20% | |
| 402 | Engineering Systems and Equipment | 0% | 0% | 20% | |
| 403 | Waste Disposal, Recycling, and Reuse | 0% | 0% | 20% | |
| 404 | Instrumentation and Control Systems | 0% | 0% | 20% | |
| 405 | Drainage and Irrigation Systems and Facilities | 0% | 0% | 20% | |
| | **Total** | 0% | 0% | 100% | |

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

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

| Year: 2009 | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |
| Actual | 0.0 | 0.0 | 2.4 | 0.0 |

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

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

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

**1. Brief description of the Activity**

{No Data Entered}

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

{No Data Entered}

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

### 1. Standard output measures

| 2009 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---|---|---|---|---|
| Plan | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} |
| Actual | 0 | 0 | 0 | 0 |

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

Year: 2009
Plan:
Actual: 3

**Patents listed**
Wireless Based Marine Pathogens Detection System
Transhydrogenase Genes Increase Furfural Tolerance
Method and Apparatus for Measuring Oxygen Transmission Rate (OTR) of Perforated Thin Films

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

**Number of Peer Reviewed Publications**

| 2009 | Extension | Research | Total |
|---|---|---|---|
| Plan | | | |
| Actual | 0 | 39 | 39 |

## 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 technology that can be used to increase food or improve the environment |

## Outcome #1

### 1. Outcome Measures

Develop new technology that can be used to increase food or improve the environment

### 2. Associated Institution Types

- 1862 Research

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | {No Data Entered} | 0 |

### 3c. Qualitative Outcome or Impact Statement

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

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

**Results**
The experimental results for our canker detection studies to date have given us confidence in our ability to discriminate between canker and other confounding disease conditions under static conditions. Under several different scenarios we have been able to discriminate at accuracies around 96%. We have also demonstrated that canker lesion reflectance spectra doesn't change during the season, and that we can detect lesions down to 2mm

in diameter under static conditions. Finally, we have demonstrated the potential for implementing these approaches in a multi-spectral on-line systems operating at line speeds in excess of 5 fruit per second. We do not expect any problems with operating these approaches at 10 fruit per second. We therefore have developed a technology which could be implemented on-line under packinghouse conditions. The development work for enhanced fruit detection for robotic harvesting has documented a new approach for scanning a robotic harvesting region of interest which has the potential to significantly improve harvesting efficiency over approaches proposed in earlier works. This approach can be combined with normal ROI havesting strategy to effectively scan the ROI and then map fruit with in the ROI that my not be detectable from a single perspective viewing. The potential for improving fruit detection above 90% compared to earlier efforts in the 75% range, offers a potential significant improvement.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 404 | Instrumentation and Control 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 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 lead to large-scale fires. Florida also has other weather extremes such as floods leading to large scale damage especially along coastal regions and rivers that can impact research studies.

Florida has three international shipping ports and four international airports with a new one scheduled to open in 2010. Besides imported goods over 53 million tourists visited annually from around the world. It has been estimated that because of this international influx into the state, we are the entry point for one new invasive plant, pest or disease each week. Any of these external factors can adversly affect the 1862 research outcomes.

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)

- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants

**Evaluation Results**

Research in Florida in the areas of Agricultural, natural resources and biological engineering include work on the design, construction and cost of facilities, engineering systems and equipment that increase efficiency and decreases labor costs in both ag and forestry. Research is done in both pre and post harvest cycles.

**Key Items of Evaluation**

To remain competitive in a global market, Florida's citrus industry must become more efficient; in such a context, the mechanization of orange harvesting has become a priority. It is perceived that the use of an abscission agent would increase mechanical harvesting efficiency and reduce variation in fruit removal. The development of abscission agents for use in combination with mechanical harvesting is expected to increase fruit removal percentages and speed of harvest while decreasing overall harvesting cost. This project examines basic mechanisms of citrus abscission and utilizes this knowledge to search for abscission agents. These agents will be used to define mechanical harvester/abscission agent combinations that will increase harvesting efficiency. This work has lead to a greater understanding of the abscission process in mature fruit, and the importance of controlling abscission for economic sustainability of the harvesting procedure for citrus and other tree fruit commodities. Through our work, other commodities needs for abscission research, an abscission agent, and mechanical harvesting, notably raisin and table grapes, and table olives, were advanced.

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

**Program # 16**

**1. Name of the Planned Program**

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

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

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---|---|---|---|---|---|
| 901 | Program and Project Design, and Statistics | 0% | 0% | 33% | |
| 902 | Administration of Projects and Programs | 0% | 0% | 33% | |
| 903 | Communication, Education, and Information Delivery | 0% | 0% | 34% | |
| | **Total** | 0% | 0% | 100% | |

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

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

| Year: 2009 | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |
| Actual | 0.0 | 0.0 | 1.6 | 0.0 |

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

| Extension | | Research | |
|---|---|---|---|
| **Smith-Lever 3b & 3c** | **1890 Extension** | **Hatch** | **Evans-Allen** |
| 0 | 0 | 48734 | 0 |
| **1862 Matching** | **1890 Matching** | **1862 Matching** | **1890 Matching** |
| 0 | 0 | 48734 | 0 |
| **1862 All Other** | **1890 All Other** | **1862 All Other** | **1890 All Other** |
| 0 | 0 | 0 | 0 |

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

**1. Brief description of the Activity**

{No Data Entered}

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

{No Data Entered}

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

**1. Standard output measures**

| 2009 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---|---|---|---|---|
| Plan | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} |
| Actual | 0 | 0 | 0 | 0 |

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

Year: 2009
Plan:
Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

| 2009 | Extension | Research | Total |
|---|---|---|---|
| Plan | | | |
| Actual | 0 | 60 | 24 |

**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 searchable, web accessible databases for expanded use by the lay public and scientists |

## Outcome #1

### 1. Outcome Measures

Develop searchable, web accessible databases for expanded use by the lay public and scientists

### 2. Associated Institution Types

- 1862 Research

### 3a. Outcome Type:

Change in Action Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | {No Data Entered} | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
Requests for information on plants in the University of Florida Herbarium centers on type specimens, poisonous plants, edible and medicinal plants, and general info on vascular plants. Much of this information could be available to the general public as well as the scientific public by a searchable, web accessible database with digitized images. This project will provide a searchable, web accessible database with digitized images for use by scientists and the lay public.

**What has been done**
Approach: 1) Computerization of the collections. Our database is a special application developed in MicroSoft Visual FoxPro. The database is upsized to MicroSoft SQL Server and deployed on the web through Active Server Pages. Priority criteria used for selecting specimens for data entry: 1) type specimens; 2) new specimen sets of University of Florida Herbarium affiliated collectors with label data prepared in accordance with our data standards; 3) historic collections of J.K. Small, A.P. Garber, etc. as encountered in loan preparation; and 4) specimen data requests from researchers. This system has been an opportunistic system of computerizing the herbarium collections. 2) Digital Imaging. The digital images available in the University of Florida Herbarium Collections Catalog and Type Specimens web sites are prepared using several types of scanners and digital cameras. This work is facilitated by the collaboration of the Florida Museum of Natural History / University of Florida Herbarium, University of Florida Libraries Digital Library Center and the Florida Center for Library Automation.

**Results**
The herbarium's collection catalog (http://www.flmnh.ufl.edu/herbarium/cat/) grew by 5676 entries, between 1 October 2008 and 30 September 2009, to a total of 54527 cataloged accessions. Several thousand more cataloged specimens are in our proofing queue. During the same period, 10766 specimen images were created. 8875 of the new images are linked in and are currently on line while 1891 are loaded on the server but have not been linked in to our catalog yet. There are now 17223 images available through our Web site. A number of significant specimen sets were cataloged and imaged during this period including all specimens of species listed as invasive in Florida by the Florida Exotic Pest Plant Council and 41 species of rare Florida plants. We had previously only processed selected specimens of each species in these groups but are now going back to include all specimens. We cataloged and imaged about 650 specimens (selected families including Asteraceae and Clusiaceae) out of Susan C. Carr's massive set of vouchers for "Fire-adapted Pineland Vegetation of Florida: FL Nongame Program project NG98-016." Forty-two native species that are closely related to nonnative species, were cataloged in collaboration with a project by Dr. Betsy VonHolle of the University of Central Florida to look at flowering phenologies over time. These native species are being compared to the nonnatives to see if there has

been a shift in flowering and fruiting time that might indicate climate change. All specimens being sent on loan were cataloged and imaged. Large sets include: Lentibulariaceae (Pinguicula, Utricularia), Liriodendron tulipifera (Magnoliaceae), Kosteletzkya pentacarpos (Malvaceae), Pithecellobium (Fabaceae), Euthamia (Asteraceae) and Mentzelia (Loasaceae). Specimens in loan returns were also added, if not already done. Plant systematic, environmental and ecological researchers are using our Web site's collection catalog and images to mine data for project work.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 901 | Program and Project Design, and Statistics |
| 903 | Communication, Education, and Information Delivery |

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

**External factors which affected outcomes**

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

**Brief Explanation**

Florida is 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 lead to large-scale fires. Florida also has other weather extremes such as floods leading to large scale damage especially along coastal regions and rivers that can impact research studies.

Florida has three international shipping ports and four international airports with a new one scheduled to open in 2010. Besides imported goods over 53 million tourists visited annually from around the world. It has been estimated that because of this international influx into the state, we are the entry point for one new invasive plant, pest or disease each week. Any of these external factors can adversly affect the 1862 research outcomes.

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

1. Evaluation Studies Planned

**Evaluation Results**

{No Data Entered}

**Key Items of Evaluation**

{No Data Entered}

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

**Program # 17**

**1. Name of the Planned Program**

Global Food Security and Hunger

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

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---|---|---|---|---|---|
| 604 | Marketing and Distribution Practices | 100% | 0% | 0% | |
| | **Total** | 100% | 0% | 0% | |

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

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

| Year: 2009 | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |
| Actual | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} |

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

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

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

**1. Brief description of the Activity**

{No Data Entered}

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

{No Data Entered}

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

**1. Standard output measures**

| 2009 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---|---|---|---|---|
| Plan | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} |
| Actual | 0 | 0 | 0 | 0 |

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

Year: 2009
Plan:
Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

| 2009 | Extension | Research | Total |
|---|---|---|---|
| Plan | | | |
| Actual | 0 | 0 | 0 |

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

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

## V. State Defined Outcomes Table of Content

| O. No. | OUTCOME NAME |
|---|---|
| 1 | Increase global food security and reduce food hunger through improved marketing techniques |

## Outcome #1

### 1. Outcome Measures

Increase global food security and reduce food hunger through improved marketing techniques

### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | {No Data Entered} | 266 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
Almost 800 clients attended Florida?s first ever Small Farms and Alternative Enterprises Conference in August of 2009 at the Osceola Heritage Park in Kissimmee, Fl. To provide feedback to the planning committee, an evaluation survey was completed by 214 attendees with about half reporting that they were existing farmers/ranchers. Interestingly, another 52 completing the survey were prospective farmers and when considering this and that 80 exhibitors were also present, it indicates this program was heavily supported by all levels of the small farms industry.

**What has been done**
Educational programs are also supporting improvements in the area of Global Food Security and Hunger. Efforts have included trainings for beginning farmers and ranchers to direct-market safe, local foods in their communities. Training is conducted to help farmers direct market nutritious foods to recipients in WIC and other similar programs. Increased efforts are also being conducted under the general description of ?sustainable local food systems? to provide safe local foods within an entire community.

**Results**
A majority of respondents indicated that they were very confident that they would be able to apply the knowledge gained immediately and could now locate additional information, supplies and technology needed for their farm or organization. Networking seemed to be the biggest positive for the conference as an overwhelming majority rated this high in several questions. Helping small farmers understand challenges and identify opportunities was also successful as over 50% of respondents felt like they now understood what lay ahead for those in small scale production and marketing.

### 4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---|---|
| 604 | Marketing and Distribution Practices |

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

**External factors which affected outcomes**

**Brief Explanation**

{No Data Entered}

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants

**Evaluation Results**

WE will report in this section in 2010. This year information provided on Global Food Security and Hunger is still reported in " Enhance and maintain agricultural and food systems."

**Key Items of Evaluation**

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

**Program # 18**

**1. Name of the Planned Program**

Global Food Security and Hunger--Research

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

1. Program Knowledge Areas and Percentage

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

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

| Year: 2009 | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |
| Actual | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} |

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

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

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

**1. Brief description of the Activity**

{No Data Entered}

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

{No Data Entered}

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

**1. Standard output measures**

| 2009 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---|---|---|---|---|
| Plan | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} |
| Actual | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} |

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

Year: 2009
Plan:
Actual: {No Data Entered}

**Patents listed**
{No Data Entered}

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

**Number of Peer Reviewed Publications**

| 2009 | Extension | Research | Total |
|---|---|---|---|
| Plan | | | |
| Actual | {No Data Entered} | {No Data Entered} | {No Data Entered} |

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

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

## V. State Defined Outcomes Table of Content

## Outcome #1

### 1. Outcome Measures

{No Data Entered}

### 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 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 lead to large-scale fires. Florida also has other weather extremes such as floods leading to large scale damage especially along coastal regions and rivers that can impact research studies.

Florida has three international shipping ports and four international airports with a new one scheduled to open in 2010. Besides imported goods over 53 million tourists visited annually from around the world. It has been estimated that because of this international influx into the state, we are the entry point for one new invasive plant, pest or disease each week. Any of these external factors can adversly affect the 1862 research outcomes.

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants

**Evaluation Results**

Information in this section will be reported beginning next year. Presently it is identified other many other research areas of this report.

**Key Items of Evaluation**

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

**Program # 19**

**1. Name of the Planned Program**

Climate Change

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

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---|---|---|---|---|---|
| 132 | Weather and Climate | 100% | 100% | 0% | |
| | **Total** | 100% | 100% | 0% | |

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

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

| Year: 2009 | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |
| Actual | 0.0 | 1.0 | 0.0 | 0.0 |

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

| Extension | | Research | |
|---|---|---|---|
| **Smith-Lever 3b & 3c** | **1890 Extension** | **Hatch** | **Evans-Allen** |
| 0 | 67012 | 0 | 0 |
| **1862 Matching** | **1890 Matching** | **1862 Matching** | **1890 Matching** |
| 0 | 67012 | 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**

The University of Florida Climate Variability and Change Extension program provides leadership to the regional extension efforts in the SECC (SEClimate.org), a consortium of eight universities in Florida, Georgia, Alabama, North Carolina, and South Carolina. The main objectives of the IFAS Climate Extension program include increasing the climate literacy of stakeholders across the region, developing and implementing in-service training opportunities to extension faculty, producing educational materials including EDIS publications to inform extension agents, growers, consultants, and others, and developing and operating a web-based climate information and decision support system (AgroClimate.org). Our main goal is to help agricultural and natural resource managers reduce risks associated with climate variability and change. Emphasis is given to the inclusion of climate forecasting in the decision making process of agricultural and natural resource managers.

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

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

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

**1. Standard output measures**

| 2009 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---|---|---|---|---|
| Plan | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} |
| Actual | 0 | 0 | 0 | 0 |

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

Year: 2009
Plan:
Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

| 2009 | Extension | Research | Total |
|---|---|---|---|
| Plan | | | |
| Actual | 0 | 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 | Increasingly effective involvement of Extension faculty in the development of adaptation and mitigation strategies by local governments and clientele groups |
| 2 | Increased climate literacy of clientele on the topics of:<br><br>* Natural and anthropogenic causes of climate variability and change<br><br>* Interrelationships between climate, agriculture, natural resources and society (climate, energy, fresh water and food)<br><br>* Impacts of on-going anthropogenic activities on the climate system<br><br>* Potential adaptation and mitigation strategies for various sectors of society |
| 3 | Local and state adaptation strategies have been developed by clientele as a result of early-adopter or demonstration projects installed or implemented with faculty facilitation and/or collaboration |

## Outcome #1

### 1. Outcome Measures

Increasingly effective involvement of Extension faculty in the development of adaptation and mitigation strategies by local governments and clientele groups

### 2. Associated Institution Types

- 1862 Extension

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | {No Data Entered} | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
AgroClimate is our main mechanism for delivering climate information and decision support tools.

**What has been done**
During 2009 a disease forecasting system to predict anthracnose and Botrytis fruit rot epidemics on strawberries was developed to help producers apply fungicide only when environmental conditions are favorable for the disease.

**Results**
The system relies on air temperature and leaf wetness duration data collected at Florida Automated Weather Network (FAWN) stations and short-term weather forecast to estimate risk levels and inform producers on the need to apply fungicide via an AgroClimate.org (http://www.agroclimate.org/tools/strawberry) application and also via text messages delivered to cell phones of producers that subscribe to the system.

### 4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---|---|
| 132 | Weather and Climate |

## Outcome #2

### 1. Outcome Measures

Increased climate literacy of clientele on the topics of: * Natural and anthropogenic causes of climate variability and change * Interrelationships between climate, agriculture, natural resources and society (climate, energy, fresh water and food) * Impacts of on-going anthropogenic activities on the climate system * Potential adaptation and mitigation strategies for various sectors of society

### 2. Associated Institution Types

- 1862 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | {No Data Entered} | 0 |

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

**Issue (Who cares and Why)**
The University of Florida Climate Variability and Change Extension program provides leadership to the regional extension efforts in the SECC (SEClimate.org), a consortium of eight universities in Florida, Georgia, Alabama, North Carolina, and South Carolina. The main objectives of the IFAS Climate Extension program include increasing the climate literacy of stakeholders across the region, developing and implementing in-service training opportunities to extension faculty, producing educational materials including EDIS publications to inform extension agents, growers, consultants, and others, and developing and operating a web-based climate information and decision support system (AgroClimate.org). Our main goal is to help agricultural and natural resource managers reduce risks associated with climate variability and change. Emphasis is given to the inclusion of climate forecasting in the decision making process of agricultural and natural resource managers.

**What has been done**
AgroClimate is our main mechanism for delivering climate information and decision support tools. Climate variability is a major source of risk in agriculture. The majority of crop failures in the USA are associated with either a lack or excess of rainfall. Climate variability is also associated with other sources of production risks such as pest and disease incidence. Weather patterns, including high temperature and humidity, and the potential for daily rainfall, can create a near perfect environment for the outbreak of fungal diseases. The AgroClimate (http://www.agroclimate.org) system was developed under a partnership with the USDA-Risk Management Agency and includes information and a set of dynamic applications or tools that interact with a database system.

**Results**
The information and tools are available at the county level across the states of Alabama, Florida, Georgia, and North Carolina.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 132 | Weather and Climate |

**Outcome #3**

**1. Outcome Measures**

Local and state adaptation strategies have been developed by clientele as a result of early-adopter or demonstration projects installed or implemented with faculty facilitation and/or collaboration

**2. Associated Institution Types**

- 1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | {No Data Entered} | 0 |

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

**Issue (Who cares and Why)**
The implementation of a drought monitoring and forecasting system specifically designed to help forage producers adapt and mitigate risks associated with climate variability was also initiated. A simple, yet reliable agricultural reference index (ARID) developed by researchers at the University of Florida will be used to monitor and forecast water stress and help forage producers in their decision making process.

**What has been done**
The system is being developed with intensive stakeholder participation and training workshops aimed at Extension faculty and producers will be conducted in 2010 and 2011. Venues will include field days, extension staff training, and regional meetings of producer associations.
AgroClimate-related activities during 2009 also included the release of a number of climate and agricultural outlooks (http://agroclimate.org/forecasts/archive/index.php) with the objective of inform stakeholders of expected weather patterns and potential implications to the agricultural industry in Florida and across the region.

**Results**
During the last couple of years we have also provided In-Service training sessions aimed at increasing climate change literacy of Extension faculty. A polycom-based Climate Change IST delivered during the 2008 Extension Symposium is available online at: http://pdec.ifas.ufl.edu/symposium/2008/ and a two-day training workshop was delivered in February of 2009 (Hillsborough Community College Campus, Plant City, FL). During the Plant City IST a number of invited speakers introduced participants to the basics of climate change and potential implications of climate change to the various sectors of society, from agriculture to water resources and human health. A second IST was delivered during the 2009 Extension Professionals Association of Florida (EPAF) meeting held in Lake Buena Vista, FL (September 3, 2009) during which a series of panel discussions were organized and lead by Extension agents and specialists.

Our Climate Extension program has also developed climate and weather educational opportunities for youth. Our youth program started with an award from the 4-H foundation in February of 2008 to develop and deliver a workshop on weather and climate. Our main objective is to engage 4-H students in real-world collection of weather data, teach where to and not to place weather shelters and instrumentation such as thermometers and rain gauge and also expose them to basic concepts of weather and climate. An Extension publication was produced in 2009 to guide Extension faculty interested in replicating the program in their counties: EDIS AE447: http://edis.ifas.ufl.edu/ae447. We also organized and delivered a training session on the same topic during the Youth Development Institute, held in Gainesville, FL, January 25-28, 2010.

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 132 | Weather and Climate |

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

**External factors which affected outcomes**

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

**Brief Explanation**

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Comparison between locales where the program operates and sites without program intervention

**Evaluation Results**

This program will not be used in full to present information on climate change until next year. Presently some information is reported here but the rest will be found in the program on "enhance and maintain agricultural and food systems".

**Key Items of Evaluation**

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

**Program # 20**

**1. Name of the Planned Program**

Climate Change--Research

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

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---|---|---|---|---|---|
| 132 | Weather and Climate | 0% | 0% | 100% | |
| | **Total** | 0% | 0% | 100% | |

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

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

| Year: 2009 | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |
| Actual | 0.0 | 0.0 | 0.0 | 0.0 |

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

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

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

**1. Brief description of the Activity**

The University of Florida provides overall leadership of agricultural research and extension efforts in the SECC (SEClimate.org) a consortium of eight universities in Florida, Georgia, Alabama, North Carolina, and South Carolina. The overall goal of the SECC is to develop climate information and decision support systems for the Southeastern USA that will contribute to an improved quality of life, increased profitability, decreased economic risks, and more ecologically sustainable management of agricultural ecosystems, forests and other terrestrial ecosystems, and coastal ecosystems of the Southeastern USA. Research is conducted to develop new information to help the agricultural community reduce risks to climate variability and climate change and to take advantage of information to increase economic and environmental benefits. Specific accomplishments of investigators at the University of Florida during the last year are summarized here.

During the previous nine years of the SECC, our research focused on the use of seasonal climate forecasts and our

understanding of climate variability to reduce risks of drought, wild fires, excess rainfall, and freezing temperatures on agricultural and forestry systems and on management of water resources. During the last year, research on climate variability continued, but we added a focus on climate change because of the potential impacts on agriculture and the high level of interest among stakeholders. This interest is not only on changes in climate that are likely in Florida, but also on policies enacted at state and federal levels that could impact agricultural systems, either positively or negatively. We initiated a process for identifying stakeholders that may be interested in climate change information. Social scientists cooperators at UF developed a preliminary research outline for stakeholder interviews to be conducted in February and March 2010 and began planning for stakeholder workshops scheduled for April 2010 in Tifton, GA.

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

All stakeholders

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

**1. Standard output measures**

| 2009 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---|---|---|---|---|
| Plan | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} |
| Actual | 0 | 0 | 0 | 0 |

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

Year: 2009
Plan:
Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

| 2009 | Extension | Research | Total |
|---|---|---|---|
| Plan | | | |
| Actual | 0 | 0 | 0 |

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

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

## V. State Defined Outcomes Table of Content

## Outcome #1

### 1. Outcome Measures

{No Data Entered}

### 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 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 lead to large-scale fires. Florida also has other weather extremes such as floods leading to large scale damage especially along coastal regions and rivers that can impact research studies.

Florida has three international shipping ports and four international airports with a new one scheduled to open in 2010. Besides imported goods over 53 million tourists visited annually from around the world. It has been estimated that because of this international influx into the state, we are the entry point for one new invasive plant, pest or disease each week. Any of these external factors can adversly affect the 1862 research outcomes.

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Comparison between locales where the program operates and sites without program intervention

**Evaluation Results**

Although some information is provided this year in this program area, most information concerning research in the area of climate change will be found in other parts of this report. This program will be fully functional in the 2010 report.

**Key Items of Evaluation**

A new agricultural reference index for drought (ARID) was developed to provide quantitative information for monitoring and forecasting the effects of climate on crops and pastures. This index is based on sound principles of soil water balance and evapotranspiration of a reference crop. During 2009, we showed that the index during a crop season is highly correlated with yields of corn, peanut, soybean, cotton, and pasture grasses. Field measurements of soil water and growth of pasture were made to provide ranchers and hay producers with quantative information of drought on productivity. The aim is to use this index to monitor drought across Florida and other SE states with daily updates at a fine spatial resolution and also to forecast ARID for a 3-6 month time period to allow producers to estimate risks associated with drought. This will be added to our Extension-led AgroClimate.org to reach producers in Florida and other SECC states.

We developed a quantitative methodology for directly comparing the response of observed corn, peanut and cotton yields in the SE USA with ENSO phenomena classified using four dissimilar ENSO indices. Two of these are categorical (Japan Meteorological Association, JMA and modified, or monthly, JMA), and two are quantitative (Oceanic El Niño Index. ONI and Monthly El Niño Index, MEI). Results indicate the superiority of the quantitative indices, and especially the MEI for forecasting crop yields in response to climate variability. This research is aimed at providing farmers with improved capabilities to anticipate yields of different crops and management practices for improving production plans and decisions.

We completed a sensitivity analysis on physics configurations and key surface parameters for the MM5 regional climate model and submitted a manuscript on this work to the Journal of Geophysical Research. A new state-of-the-art regional climate model, WRF, has been installed and test simulations run in the UF High Performance Computational system and in our cluster at ABE. Using WRF and MM5, high resolution (order 500 m to 1 km) runs are in progress to inspect the impact of land use change (LUC) over last decade (1992-2006) on central Florida climate conditions. Working with SECC researchers at Florida State Univeristy, UF researchers have linked a regional scale climate model with our dynamic crop models to improve seasonal climate forecasts for agricultural uses. In addition, various advanced statistical methods have been used to determine how reliable forecasts for different crops are. We found that these advanced climate models and statistical methods can improve seasonal climate forecasts that we have been using in the past. These methods provide improved information to the agricultural community and water resource managers.

We conducted research on effects of climate variability on water resources. We used regional climate models to evaluate how well rainfall could be forecast for use in water resource management and on how water quality (nitrogen and phosphorus) in streams could be forecast based on an understanding of climate variability. In addition, work was started last year to develop information and tools for estimating carbon footprint of agricultural systems (initially, strawberry and cattle production in cow-calf operations). Society is starting to demand actions from governments and the private sector to reduce the emissions of greenhouse gases across the globe. The latest science indicates that a large-scale reduction of greenhouse gas emissions will be required across its many sources in our economy, including the agricultural sector, to reduce the anticipated increases in global temperatures. These research projects will lead to tools to help farmers and ranchers reduce their carbon and energy footprints and to take advantage of marketing opportunities. These research initiatives have developed from many interactions with stakeholders.

Due to the interest in our successful web-based climate risk management information and decision support system, www.AgroClimate.org, a new research effort was developed to create an open source project at a national scale for those who are developing tools and information for the agricultural sector about climate variability, climate change, adaptation, and mitigation. This will facilitate the adaptation of AgroClimate by other states or regions and will provide mechanisms for researchers in other states to contribute to an agricultural community climate information and decision support system.

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

**Program # 21**

**1. Name of the Planned Program**

Sustainable Energy

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

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---|---|---|---|---|---|
| 401 | Structures, Facilities, and General Purpose Farm Supplies | 25% | 25% | 0% | |
| 402 | Engineering Systems and Equipment | 25% | 25% | 0% | |
| 403 | Waste Disposal, Recycling, and Reuse | 50% | 50% | 0% | |
| | **Total** | 100% | 100% | 0% | |

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

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

| Year: 2009 | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |
| Actual | 0.0 | 1.0 | 0.0 | 0.0 |

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

| Extension | | Research | |
|---|---|---|---|
| **Smith-Lever 3b & 3c** | **1890 Extension** | **Hatch** | **Evans-Allen** |
| 0 | 66014 | 0 | 0 |
| **1862 Matching** | **1890 Matching** | **1862 Matching** | **1890 Matching** |
| 0 | 66014 | 0 | 0 |
| **1862 All Other** | **1890 All Other** | **1862 All Other** | **1890 All Other** |
| 0 | 0 | 0 | 0 |

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

**1. Brief description of the Activity**

{No Data Entered}

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

{No Data Entered}

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

**1. Standard output measures**

| 2009 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---|---|---|---|---|
| Plan | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} |
| Actual | 0 | 0 | 0 | 0 |

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

Year: 2009
Plan:
Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

| 2009 | Extension | Research | Total |
|---|---|---|---|
| Plan | | | |
| Actual | 0 | 0 | 5 |

**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 sustainable energy opportunities for small farms |

## Outcome #1

### 1. Outcome Measures

Improve sustainable energy opportunities for small farms

### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | {No Data Entered} | 266 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
The vast majority of Florida?s nearly 44,000 farms are classified as small farms. Calculated on an area or on an economic basis, nearly 90% of all Florida farms are small farms. Recent increased efforts to meet the educational needs of small farmers in Florida became visible through the work of the University of Florida/IFAS and Florida A&M University Small Farms Focus Team. Efforts have included the development of an extensive website specifically targeted at small farmer needs. One issue identified is the need to improve energy sustainability to increase profits and environmental stewardship.

**What has been done**
Almost 800 clients attended Florida?s first ever Small Farms and Alternative Enterprises Conference in August of 2009 at the Osceola Heritage Park in Kissimmee, Fl. To provide feedback to the planning committee, an evaluation survey was completed by 214 attendees with about half reporting that they were existing farmers/ranchers. Interestingly, another 52 completing the survey were prospective farmers and when considering this and that 80 exhibitors were also present, it indicates this program was heavily supported by all levels of the small farms industry. The Small Farms and Alternative Enterprises Focus Team has provided Educational Programs for Sustainable Energy for small farmers at the Florida Small Farms and Alternative Enterprises Conference (Aug 1-2, 2009), and several regional small farms conference locations, such as Live Oak and Jay. These programs were attended by a few hundred small farmers.

**Results**
Awareness was increased in how to sustain energy and reduce costs to small farms.A majority of respondents indicated that they were very confident that they would be able to apply the knowledge gained immediately and could now locate additional information, supplies and technology needed for their farm or organization.

### 4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---|---|
| 401 | Structures, Facilities, and General Purpose Farm Supplies |
| 402 | Engineering Systems and Equipment |

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

**External factors which affected outcomes**

**Brief Explanation**

{No Data Entered}

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Comparison between locales where the program operates and sites without program intervention

**Evaluation Results**

Although this program is being partially utilized in the 2009 report it will not become fully functional until the 2010 report. Information Extension programs in the area of sustainable energy can be found in other parts of this report.

**Key Items of Evaluation**

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

**Program # 22**

**1. Name of the Planned Program**

Sustainable Energy---Research

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

1. Program Knowledge Areas and Percentage

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

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

| Year: 2009 | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |
| Actual | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} |

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

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

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

**1. Brief description of the Activity**

{No Data Entered}

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

{No Data Entered}

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

**1. Standard output measures**

| 2009 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---|---|---|---|---|
| Plan | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} |
| Actual | 0 | 0 | 0 | 0 |

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

Year: 2009
Plan:
Actual: 3

**Patents listed**
Ethanol Production in Non-Recombinant Hosts
Ethanologenic Bacteria and Their Use in Ethanol Production
Transhydrogenase Genes Increase Furfural Tolerance

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

**Number of Peer Reviewed Publications**

| 2009 | Extension | Research | Total |
|---|---|---|---|
| Plan | | | |
| Actual | 0 | 0 | 0 |

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

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

# V. State Defined Outcomes Table of Content

## Outcome #1

### 1. Outcome Measures

{No Data Entered}

### 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 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 lead to large-scale fires. Florida also has other weather extremes such as floods leading to large scale damage especially along coastal regions and rivers that can impact research studies.

Florida has three international shipping ports and four international airports with a new one scheduled to open in 2010. Besides imported goods over 53 million tourists visited annually from around the world. It has been estimated that because of this international influx into the state, we are the entry point for one new invasive plant, pest or disease each week. Any of these external factors can adversly affect the 1862 research outcomes.

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Comparison between locales where the program operates and sites without program intervention

**Evaluation Results**

Sustainable energy is being reported in 2009 in other parts of this ROA. This program area will be integrated into the report in 2010 when funds utilized and FTEs can be clearly determined following changes to our tracking procedures.

## Key Items of Evaluation

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

**Program # 23**

**1. Name of the Planned Program**

Childhood Obesity

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

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---|---|---|---|---|---|
| 703 | Nutrition Education and Behavior | 50% | 50% | 0% | |
| 723 | Hazards to Human Health and Safety | 25% | 25% | 0% | |
| 724 | Healthy Lifestyle | 25% | 25% | 0% | |
| | **Total** | 100% | 100% | 0% | |

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

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

| Year: 2009 | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |
| Actual | 0.0 | 2.0 | 0.0 | 0.0 |

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

| Extension | | Research | |
|---|---|---|---|
| **Smith-Lever 3b & 3c** | **1890 Extension** | **Hatch** | **Evans-Allen** |
| 0 | 90063 | 0 | 0 |
| **1862 Matching** | **1890 Matching** | **1862 Matching** | **1890 Matching** |
| 0 | 90063 | 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**

Obesity is a leading causes of disability and death and contribute to the rising cost of health care in adults. More and more children are joining these ranks. Risks for these conditions can be reduced through changes in lifestyle behaviors, including eating behaviors, physical activity, and participation in health screenings.

Extension lifestyle intervention programs provide people with the knowledge, motivation, and skills they need to adopt behavior changes that promote positive nutritional status and reduced health risks, which may result in lower health care costs. In addition to in-depth programs, Extension provides research-based information designed to increase awareness about these diseases and conditions to a wider audience through written and other media. Increased awareness can motivate these individuals to

participate in Extension lifestyle intervention programs.

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

Parents other caregivers and youth

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

**1. Standard output measures**

| 2009 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---|---|---|---|---|
| Plan | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} |
| Actual | 0 | 0 | 0 | 0 |

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

Year: 2009
Plan:
Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

| 2009 | Extension | Research | Total |
|---|---|---|---|
| Plan | | | |
| Actual | 0 | 0 | 5 |

**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 parenting strategies that will allow parents and children to overcome barriers to eating healthy and being physically active |
| 2 | *Increase parent and child knowledge of the best food choices to meet nutritional needs within caloric requirements |
| 3 | *Increase education of policy makers on the long-term financial implications of obesity |
| 4 | *Improve the BUILT environment to increase the opportunity for children to be active daily in a safe environment |

## Outcome #1

### 1. Outcome Measures

* Improve parenting strategies that will allow parents and children to overcome barriers to eating healthy and being physically active

### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | {No Data Entered} | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**

**What has been done**

**Results**

### 4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---|---|
| 703 | Nutrition Education and Behavior |

## Outcome #2

### 1. Outcome Measures

* Increase parent and child knowledge of the best food choices to meet nutritional needs within caloric requirements

### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|

| | | |
|---|---|---|
| 2009 | {No Data Entered} | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**

attention has focused on providing nutrition education and services to address the rising epidemic of overweight and obesity in America, especially among children and adolescents. The Florida Department of Health's School-Aged Child and Adolescent Health Profile estimates that in 2008, 31% of middle school students and 40% of high school students did not receive sufficient vigorous physical activity. The Profile further estimates overweight prevalence rates of 11.5% and 9.8% among middle and high school students respectively. The Youth Risk Behavior Survey (YRBS) of 2007 estimates Florida high school students demonstrated greater physical activity risk factors than the US average with 40% watching more than 3 hours of television daily and 77% not attending physical education class daily. The survey also estimated an 11.2% obesity prevalence rate among Florida high school students, with 77.9% reporting eating less than five fruits and vegetables daily and 31% consuming at least one sugary drink daily. In 2009, Morbidity & Mortality Weekly Report (MMWR) released a report on the increasing trend of pediatric obesity among low-income children (aged 2-4 years old) over ten years. Florida's prevalence rates reflected a steady increase over the years to nearly mirror the national rate.

**What has been done**

The Family Nutrition Program (FNP) provides nutrition education to individuals and their families' eligible to receive SNAP benefits (formally known as food stamps), known as SNAP education (SNAP-Ed). The program provides nutrition education interventions to five different target populations in an effort to address the state's disparities. In the 2009 fiscal year, the FNP program provided 862,829 direct nutrition education interventions (as either single lesson or as a multi-lesson education series) in 33 counties to 153,937 adults and children eligible to receive SNAP benefits. In addition, the FNP program provided indirect nutrition education interventions reaching 100,000 SNAP eligible adults and children through radio PSAs, 100,000 through TV PSAs, 870,689 through nutrition articles, 422 through billboards, bus wraps, and over sized signage, 97,468 through community health fairs, and 6,896 through other unique methods. Adult and youth participants reported increases in intent to change nutrition, physical activity, food resource management, and food safety behaviors. The following outlines specific outcomes from FY 09 programming efforts in their respective project areas (Areas 1-4 only).

**Results**

Project Area 1: Children & Youth
*71% increase in children reporting an intent to eat more fruits and vegetables
*82% increase in children reporting an intent to consume recommended servings
*48% increase in children reporting an intent to be physically active every day
*29% increase in children reporting an intent to wash hands before preparing or eating meals
*28% increase in children reporting an intent to not let food sit out more than two hours
*13% increase in children reporting an intent to keep raw meat separate from other foods
*13% increase in children reporting an intent to cook meats and eggs thoroughly

### 4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---|---|
| 703 | Nutrition Education and Behavior |

## Outcome #3

### 1. Outcome Measures

* Increase education of policy makers on the long-term financial implications of obesity

Not Reporting on this Outcome Measure

**Outcome #4**

**1. Outcome Measures**

* Improve the BUILT environment to increase the opportunity for children to be active daily in a safe environment

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | {No Data Entered} | 0 |

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

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

| KA Code | Knowledge Area |
|---|---|
| 724 | Healthy Lifestyle |

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

**External factors which affected outcomes**

**Brief Explanation**

{No Data Entered}

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study

- Comparisons between program participants (individuals, group, organizations) and non-participants
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Comparison between locales where the program operates and sites without program intervention

**Evaluation Results**

This program area is being partially utilized for the 2009 ROA. Additional Extension programs related to childhood Obesity can be found in the section on "human nutrition, food safety and human health. This program will be in full use in 2010 ROA.

**Key Items of Evaluation**

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

**Program # 24**

**1. Name of the Planned Program**

Childhood Obesity---Research

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

1. Program Knowledge Areas and Percentage

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

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

| Year: 2009 | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |
| Actual | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} |

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

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

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

**1. Brief description of the Activity**

{No Data Entered}

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

{No Data Entered}

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

**1. Standard output measures**

| 2009 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---|---|---|---|---|
| Plan | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} |
| Actual | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} |

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

Year: 2009
Plan:
Actual: {No Data Entered}

**Patents listed**
{No Data Entered}

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

**Number of Peer Reviewed Publications**

| 2009 | Extension | Research | Total |
|---|---|---|---|
| Plan | | | |
| Actual | {No Data Entered} | {No Data Entered} | {No Data Entered} |

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

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

## V. State Defined Outcomes Table of Content

**Outcome #1**

1. **Outcome Measures**

{No Data Entered}

**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 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 lead to large-scale fires. Florida also has other weather extremes such as floods leading to large scale damage especially along coastal regions and rivers that can impact research studies.

Florida has three international shipping ports and four international airports with a new one scheduled to open in 2010. Besides imported goods over 53 million tourists visited annually from around the world. It has been estimated that because of this international influx into the state, we are the entry point for one new invasive plant, pest or disease each week. Any of these external factors can adversly affect the 1862 research outcomes.

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Comparison between locales where the program operates and sites without program intervention

**Evaluation Results**

This program area will not be utilized until the 2010 ROA.

## Key Items of Evaluation

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

**Program # 25**

**1. Name of the Planned Program**

Food Safety

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

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---|---|---|---|---|---|
| 501 | New and Improved Food Processing Technologies | 20% | 20% | 0% | |
| 502 | New and Improved Food Products | 20% | 20% | 0% | |
| 503 | Quality Maintenance in Storing and Marketing Food Products | 20% | 20% | 0% | |
| 504 | Home and Commercial Food Service | 20% | 20% | 0% | |
| 511 | New and Improved Non-Food Products and Processes | 10% | 10% | 0% | |
| 512 | Quality Maintenance in Storing and Marketing Non-Food Products | 10% | 10% | 0% | |
| | **Total** | 100% | 100% | 0% | |

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

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

| Year: 2009 | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |
| Actual | 0.0 | 3.0 | 0.0 | 0.0 |

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

| Extension | | Research | |
|---|---|---|---|
| **Smith-Lever 3b & 3c** | **1890 Extension** | **Hatch** | **Evans-Allen** |
| 0 | 183733 | 0 | 0 |
| **1862 Matching** | **1890 Matching** | **1862 Matching** | **1890 Matching** |
| 0 | 183733 | 0 | 0 |
| **1862 All Other** | **1890 All Other** | **1862 All Other** | **1890 All Other** |
| 0 | 0 | 0 | 0 |

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

**1. Brief description of the Activity**

Food safety and security are critical components of a sustainable industry. According to the Centers for Disease Control and Prevention (CDC), there are over 250 known different food borne diseases. These diseases are caused by viruses, chemicals,

toxins, and fungi, as well as bacteria which are the major source of illness. In the United States, where the food supply is one of the safest in the world, it is estimated that there are 76 million incidences of food borne illness and approximately 5,000 deaths yearly.

These issues surrounding safety and security span the entire food sector, ranging from consumers to the food service and processing industries. Increasingly, food safety and security are a focus of government, industry, media and consumer awareness. The need for accurate, easy to understand, accessible information is paramount to the success of the entire industry and the health and welfare of the entire population. Extension programs provide this information through educational programs many of which include certification opportunities.

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

Employees in careers related to the food industry
General public
Producers/growers

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

**1. Standard output measures**

| 2009 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---|---|---|---|---|
| Plan | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} |
| Actual | 0 | 0 | 0 | 0 |

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

Year: 2009
Plan:
Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

| 2009 | Extension | Research | Total |
|---|---|---|---|
| Plan | | | |
| Actual | 0 | 0 | 18 |

**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 related to causes of produce related foodborne outbreaks |

## Outcome #1

### 1. Outcome Measures

Increase knowledge related to causes of produce related foodborne outbreaks

### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

### 3a. Outcome Type:

Change in Knowledge Outcome Measure

### 3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|---|---|---|
| 2009 | {No Data Entered} | 0 |

### 3c. Qualitative Outcome or Impact Statement

**Issue (Who cares and Why)**
The state was faced with increasing numbers of produce related, specifically tomato, foodborne outbreaks. The most common causative agent was the bacteria Salmonella. These outbreaks affected hundreds of growers and cost the state millions. Based on USDA ERS data, following the June-August 2008 outbreak of salmonellosis caused by S. Saintpaul (which was initially wrongly blamed on tomatoes from Florida) the price of tomatoes at the point of first sale dropped from 56.8 cents/lb in June to 25.6 cents/lb in August. Promoting safety of produce from Florida will help avoid future catastrophes exemplified by the 2008 S. Saintpaul outbreak, which nearly obliterated the industry in the State. It has been estimated that this one outbreak cost the state between 100-200 million dollars. Ensuring microbiological safety of our states crops will benefit Florida consumers, farmers, packers and retailers.

**What has been done**
1.Develop and deliver food safety educational materials and training.
2.Provide training statewide to producers, field workers, packers and repackers of fresh fruits and vegetables.
3.Develop a food safety standardized training curriculum focusing on those fruits and vegetables associated with the highest risk of foodborne illness and at the greatest level of production in Florida: tomatoes, leafy greens, melons and berries
4.Develop and implement a food safety program to address safe handling, production and packing practices is critically important for quality and competitive agriculture production and the safety of the consuming public.

**Results**
In 2009, Extension faculty conducted or participated in 14 GAPs or produce safety training workshops, including one specifically targeting Florida extension agents. Since this grant began, the workshop events have training 816 attendees (611 persons with some attending two or more workshops). This group of trained individuals, represents over 80% of the tomato production in the state of Florida. Of the 611 unique individuals, approximately 40 were Florida Extension agents. The inclusion of agents in our target group has lead to spinoff programs. One such program, spearheaded by Bob Hochmuth and Linda Landrum, will include additional GAPs training with a focus on the generation of working documents for produce producers. By training the farm and packinghouse managers, this information will be passed to down to farm and packinghouse workers (either directly, through the use of the training materials, or through the efforts of trained extension agents). This overall emphasis on food safety will inevitably led to a safer product to the consumer. The reduction of just a single

foodborne outbreak associated with tomatoes or other high risk commodity can save the state hundreds of millions of dollars.
This program also was instrumental in developing and/or delivering new and impactful educational materials. One of the first was the long awaited tailgate training flipchart developed with Penn State University. This flipchart, in English and Spanish, is now part of our standard training material packet and is available for free from our website to any Florida farmer or packer currently dealing in tomatoes, melons, berries and/or leafy greens. We have distributed over 500 flipcharts to date at training events. Next evolutionary step for the tailgate flipchart is a translation into Creole that will be completed in 2010. Another project underway is the Packinghouse GMP video. This DVD is being produced in cooperation with Cornell University. Members of the National GAPs Alliance reviewed the narrative for the DVD and video content. Our plans are to distribute at least 500 copies to Florida producers and packers. We will utilize our attendee lists from of our previous workshops and make copies available free of charge through the Produce Safety Center Website. We are also in the final stages of developing a Creole language version of our existing Farm Safety DVD. This to will be available free of charge to Florida producers and packers.
Lastly, we developed the UF/IFAS Produce Safety Center website to act as clearinghouse for produce safety information. This website, resulting from feedback received from stakeholders, is now functional and is located at http://fshn.ifas.ufl.edu/foodsafety/. This website contains a wealth of information, from factsheets, regulation documents to a list of upcoming training events. The site contains online workshops/training such as the Tomato Safety Update held in Naples, FL in September 2008. This training is presented on narrated PowerPoint presentation and is available to anyone with Internet access. The site also functions as a portal to a project we have entitled ?Extension University.? This site will allow 24-hour, 7 day- a-week access to educational training and certification. This system is designed to provide an educational platform for online training for all T- GAPs and T-BMPs related topics. To date, lectures online include the recorded presentations from the workshop curriculum used in all the 2009 training events.

### 4. Associated Knowledge Areas

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

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

### External factors which affected outcomes

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

### Brief Explanation

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)

- During (during program)
- Time series (multiple points before and after program)
- Case Study
- Comparisons between program participants (individuals, group, organizations) and non-participants
- Comparisons between different groups of individuals or program participants experiencing different levels of program intensity.
- Comparison between locales where the program operates and sites without program intervention

**Evaluation Results**

This program area is only being partially utilized for the 2009 ROA. It will become fully functional in the 2010 ROA

**Key Items of Evaluation**

Most foodborne disease outbreaks and cases in Florida were associated with restaurants. The top known risk factors were inadequate holding temperatures and poor personal hygiene. Majority of participants (80% of 500) who have completed the ServSafe® program had passed the certification exam, and had indicated that they will improve holding temperatures of foods as well as improving hand washing practices in their establishments.

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

**Program # 26**

**1. Name of the Planned Program**

Food Safety--Research

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

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---|---|---|---|---|---|
| 501 | New and Improved Food Processing Technologies | 33% | 0% | 0% | |
| 711 | Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources | 33% | 0% | 0% | |
| 723 | Hazards to Human Health and Safety | 34% | 0% | 0% | |
| | **Total** | 100% | 0% | 0% | |

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

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

| Year: 2009 | Extension | | Research | |
|---|---|---|---|---|
| | 1862 | 1890 | 1862 | 1890 |
| Actual | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} |

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

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

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

**1. Brief description of the Activity**

{No Data Entered}

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

{No Data Entered}

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

### 1. Standard output measures

| 2009 | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---|---|---|---|---|
| Plan | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} |
| Actual | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} | {NO DATA ENTERED} |

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

**Patent Applications Submitted**

Year: 2009

Plan:

Actual: {No Data Entered}

**Patents listed**

{No Data Entered}

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

**Number of Peer Reviewed Publications**

| 2009 | Extension | Research | Total |
|---|---|---|---|
| Plan | | | |
| Actual | {No Data Entered} | {No Data Entered} | {No Data Entered} |

## V(F). State Defined Outputs

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

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

## V. State Defined Outcomes Table of Content

## Outcome #1

### 1. Outcome Measures

{No Data Entered}

### 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 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 lead to large-scale fires. Florida also has other weather extremes such as floods leading to large scale damage especially along coastal regions and rivers that can impact research studies.

Florida has three international shipping ports and four international airports with a new one scheduled to open in 2010. Besides imported goods over 53 million tourists visited annually from around the world. It has been estimated that because of this international influx into the state, we are the entry point for one new invasive plant, pest or disease each week. Any of these external factors can adversly affect the 1862 research outcomes.

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

1. Evaluation Studies Planned

- After Only (post program)
- Retrospective (post program)
- Before-After (before and after program)
- During (during program)
- Time series (multiple points before and after program)
- Case Study
- Comparison between locales where the program operates and sites without program intervention

**Evaluation Results**

This program area will become fully functional in the 2010 ROA.

**Key Items of Evaluation**