

# 2008 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 2008 was both a successful and 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.

Florida Extension and Research are continuing to look for and find solutions to solve problems in areas that relate to the land-grant mission.

UF and FAMU Extension faculty continue to work closely together in many of the goal areas. There are 404.7 FTEs involved in UF Extension and 27 FTEs identified in FAMU Extension working in 67 counties in a state with a total population now exceeding 18 million. In 2007 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 however 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. 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 ten years in Florida. In 2007 there were 40,000 farms in the state. 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>) are greenhouse/nursery; oranges; tomatoes; dairy products; and cattle and calves. 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.

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, keeping food safe from farm to table and taking care of the quality of soil and quality and quantity of water are all important. 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 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. Websites that provide videos and other easy to view information have also been increased.

Regardless of the economic conditions in 2008, County educational programs developed and implemented by county and state faculty continue to be strong. FAMU has continued to highlight areas of herd health, economic development and sustainable organizations and communities. The University of Florida continues to develop programs under their existing seven 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.

Direct contacts through Extension group learning experiences statewide in 2008 were 3,376,836. The total of individual field and office consultations were 210,650. Over 370,708 received assistance by phone consultations and email consultations increased to 516,838. Over 263,156 youth were reached in 324,187 4-H projects. Projects included such interests as citizenship and civic education, plants and animals, and science and technology. Over 10,851 Adult volunteers and 946 youth volunteers helped to educate these youth. In all, over 4.5 million Florida clientele of all ages were reached through direct contacts in Florida during 2008. Of the 404,325 surveyed who attended group learning opportunities, 323,753 showed a change in knowledge following these Extension trainings; 140,732 said there were positive behavior changes and 77,826 made changes that impacted their communities socially, economically or environmentally.

Another 4.4 million used the EDIS online publications (written by both UF and FAMU faculty) to read or print documents written by Florida Extension specialists during the same year. The official Extension site at <http://solutionsforyourlife.com> has also continued to increase in usage. In 2008 there were 630,124 sessions meaning that clientele spent extended time within the website looking at multiple pages. Both EDIS and Solutions for Your Life (SFYL) have become additional tools to supplement the educational programs as well as improving the Extension brand.

The goal to increase the amount of integrated and multistate activities continued to be important. In 2008, University of Florida 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. 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 100.5 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. This training has added to an increase in grant allocation which so far has been able to offset some of the money lost to state funding decreases.

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. 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 3rd 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 decreasing environmental impact. Although research takes place in almost all nine knowledge area topics, plants, animals and their systems and areas related to the environments are of major importance and many of the hatch projects are funded for projects in these areas.

This year there were 231 active Hatch funded research projects. In 2008 there were a total of 50 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 1193 peer reviewed 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 using information from advisory committees, and industry. 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: It is expected that UF will be asked to reduce their budget by over \$16 million dollars in 2009. 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 develop effective 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:2008	Extension		Research	
	1862	1890	1862	1890
Plan	32.5	8.2	0.0	0.0
Actual	404.7	27.0	100.5	0.0

## II. Merit Review Process

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

- Internal University Panel
- Expert Peer Review

### 2. Brief Explanation

Prior to the initiation of each research project that is wholly, or in part, funded by federal formula funding, the designated review coordinator (or, in the case of some multi-institutional, regional or multi-state projects or programs, the administrative advisor) called for a peer review of the proposed research project. A minimum of three peer scientists (i.e., individuals qualified by their status in the same discipline, or a closely related field of science) were selected to read and provide written comments to the appropriate administrator on the proposed project. A transmittal form was then submitted that included the signatures of the PI, unit leader and the three peer reviewers. The form is kept on file electronically.

Biennially, Extension state-level programs (Goal/focus areas) that are wholly, or in part, funded by federal formula funding, undergo a merit review. If significant changes are made to the structure of the state-level program during the off year, the designated administrative advisor may call for a merit review of the state-level program. A minimum of three peer Extension faculty affiliated with a state-level goal or focus area were selected to read and provide comments to the appropriate program leader, goal and focus team leaders and review coordinator. Teams developed around the focus areas then made appropriate changes. The 2008 Goal/Focus program areas that were reviewed were Goal area 2 (Focus 3); Goal area 3 (Focus areas 1, 2 & 3); Goal area 4 (Focus areas 1 & 2); Goal area 5 (Focus areas 1-5); and goal area 7 (Focus areas 1-5) went through the merit review process). All other program areas are undergoing major changes and will be reviewed when that process is completed in 2010. Any of the State-level Goal/Focus areas reviewed this year that undergo significant change this year will also be reviewed in 2010. A complete list of all Florida Goal/Focus Program areas can be found at :

<http://pdec.ifas.ufl.edu/foci/files/StatewideGoals080108.pdf>

### **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**

Advisory committees across the state are made up of grassroots stakeholders who provide direction and information needed to identify critical needs and changing trends. Many of these advisory members represented the under-served and under-represented population. Commissioners in all 67 counties were asked to provide a two year list of goals in 2007. County residents are also encouraged to give feedback to county Extension offices.

#### **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**

Stakeholders are identified through networking, county contacts, industry leaders, political leaders, not-for-profit represents, advisory and focus groups and conversations with clientele etc.

#### **2(B). A brief statement of the process that was used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them**

##### **1. Methods for collecting Stakeholder Input**

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

**Brief Explanation**

Florida extension is developed on a grassroots approach. County faculty and state faculty collect information through one-on-one conversations, through advisory meetings and through meetings with many groups that exist in each county. Some counties do surveys while others, especially in smaller counties where they are well known gather information through personal contact. Research gains knowledge from these Extension methods and also through advisory committees and interaction with agricultural industry both in the United States and in foreign countries.

**3. A statement of how the input was 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**

In each county the information is used to update program directions and change goals and objectives to meet the identified needs. Input from stakeholders is also provided to state level focus teams by county faculty.. These focus teams are also made up of statewide county and state faculty who also have obtained information. Changes are made each year during the annual team merit review and team reviews. One of the responsibilities of the focus teams is to share with research any identified emerging trends or areas that require research.

Research also is closely attuned to the needs of industry through industry leaders, government officials and others who are able to identified needs. In some cases state researchers are working with foreign researchers on issues that have not yet reached the US, but may in time become an issue. This is a particular type of monitoring in the area of pests, disease and invasive plants and animals.

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

Extension: The age of the average farmer in Florida is 58 years. There could be a crisis coming in the Florida farming industry either because farm land will be sold when they retire or younger less experienced farmers will take their place. Small farm needs continue to be an issue that must be dealt with. Issues related to nutrition and disease, food safety and health continue to be important. Environmental issues and issues related to energy and biofuels have gained in importance. Issues related to youth and their physical and psychological needs continue to be important.

Research: Climate change and better methods of energy requires research. Ways to improve the quality and quantity of water are major issues. Ways to sustain and make agriculture more profitable are important issues. Finding better ways to protect the environment is important.

**IV. Expenditure Summary**

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
4063365	1512166	3172648	0

<b>2. Totaled Actual dollars from Planned Programs Inputs</b>				
	<b>Extension</b>		<b>Research</b>	
	<b>Smith-Lever 3b &amp; 3c</b>	<b>1890 Extension</b>	<b>Hatch</b>	<b>Evans-Allen</b>
<b>Actual Formula</b>	4063366	1512166	3142219	0
<b>Actual Matching</b>	4063366	1512166	3142219	0
<b>Actual All Other</b>	4063366	1140863	3142219	0
<b>Total Actual Expended</b>	12190098	4165195	9426657	0

<b>3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous years</b>				
<b>Carryover</b>	0	0	30427	0

**V. Planned Program Table of Content**

S. NO.	PROGRAM NAME
1	Enhance and Maintain Agricultural and Food Systems
2	Maintain and Enhance Florida's Environment
3	Developing Responsible and Productive Youth Through 4-H and Other Youth Programs
4	Create and Maintain Florida Friendly Landscapes: The Smart Way to Grow
5	Assist Individuals and Families to Achieve Economic Well-being and Life Quality
6	Healthy Communities
7	Promoting professional development activities designed to enhance organizational efficiency and effectiveness
8	Natural Resources and Environment--research
9	Plants and Their Systems-research
10	Animals and their Systems--research
11	Food and Non-Food Products: Development, Processing, Quality, and Delivery--research
12	Economics, Markets and Policy--research
13	Human Nutrition, Food Safety, and Human Health--research
14	Families, Youth. and Communities--research
15	Program and Project Support, and Administration, Education, and Communication-research
16	Agricultural, Natural Resource, and Biological Engineering - research

**Program #1**

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

**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%	
132	Weather and Climate	5%	5%	0%	
133	Pollution Prevention and Mitigation	5%	5%	0%	
136	Conservation of Biological Diversity	5%	5%	0%	
141	Air Resource Protection and Management	5%	5%	0%	
201	Plant Genome, Genetics, and Genetic Mechanisms	5%	5%	0%	
204	Plant Product Quality and Utility (Preharvest)	5%	5%	0%	
205	Plant Management Systems	5%	5%	0%	
211	Insects, Mites, and Other Arthropods Affecting Plants	5%	5%	0%	
212	Pathogens and Nematodes Affecting Plants	5%	5%	0%	
213	Weeds Affecting Plants	5%	5%	0%	
214	Vertebrates, Mollusks, and Other Pests Affecting Plants	5%	5%	0%	
216	Integrated Pest Management Systems	5%	5%	0%	
307	Animal Management Systems	5%	5%	0%	
315	Animal Welfare/Well-Being and Protection	5%	5%	0%	
402	Engineering Systems and Equipment	5%	5%	0%	
405	Drainage and Irrigation Systems and Facilities	5%	5%	0%	
502	New and Improved Food Products	5%	5%	0%	
603	Market Economics	5%	5%	0%	
	<b>Total</b>	100%	100%	0%	

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

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	98.2	3.0	0.0	0.0
<b>Actual</b>	120.6	11.0	0.0	0.0

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

Extension		Research	
<b>Smith-Lever 3b &amp; 3c</b> 1210883	<b>1890 Extension</b> 718288	<b>Hatch</b> 0	<b>Evans-Allen</b> 0
<b>1862 Matching</b> 1210883	<b>1890 Matching</b> 718288	<b>1862 Matching</b> 0	<b>1890 Matching</b> 0
<b>1862 All Other</b> 1210883	<b>1890 All Other</b> 628460	<b>1862 All Other</b> 0	<b>1890 All Other</b> 0

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

**1. Brief description of the Activity**

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

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

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

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

**1. Standard output measures**

**Target for the number of persons (contacts) reached through direct and indirect contact methods**

	<b>Direct Contacts Adults</b>	<b>Indirect Contacts Adults</b>	<b>Direct Contacts Youth</b>	<b>Indirect Contacts Youth</b>
<b>Year</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>
<b>Plan</b>	380000	6000000	0	0
2008	530201	2779155	0	0

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

**Patent Applications Submitted**

<b>Year</b>	<b>Target</b>
<b>Plan:</b>	0
2008 :	0

**Patents listed**

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

**Number of Peer Reviewed Publications**

	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Plan</b>	90	0	
2008	166	0	166



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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

*Not reporting on this Output for this Annual Report*

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	{No Data Entered}	{No Data Entered}

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

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

O No.	OUTCOME NAME
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1 Indicators for Agricultural Profitability and the Sustainable Use of Environmental Resources Indicator Number of agricultural operators that use appropriate human resource management techniques to improve worker efficiency Number of agricultural operations that use appropriate business management skills. (ie. Accurate record keeping, Financial statements and analysis, Appropriate credit management strategies, Appropriate tax management strategies) Number of agricultural operations that use appropriate production technology Number of agricultural operations that improve product margins Number of agricultural operations increasing yield Number of agricultural operations improving product quality Number of agricultural operations using value added processes Number of agricultural operations that use alternative enterprises Number of agricultural operations that have reduced input costs Number of agricultural operations that utilize efficient irrigation equipment Number of agricultural operations that utilize efficient irrigation methods Number of agricultural operations that utilize appropriate equipment Number of agricultural operations that utilize best management practices for fertilizers, pesticides and water management. Number of Agricultural operators that understand and comply with local, state, and federal regulations. Number of program participants that are satisfied with the information received by Extension Number of program participants that indicate Extension information solved a problem Number of program participants that are satisfied with Extension's services. Indicators for Awareness of Agriculture's Importance to an Economy that Ranges from Local to Global Indicator Number of program participants that indicate information is up-to-date and accurate Number of program participants that indicate information was delivered in time to use it Number of program participants that indicate information is relevant to their situation Number of program participants that indicate information is easy to understand Number of program participants that indicate they used Extension information to solve a problem Number of program participants that indicate Extension information solved a problem Number of program participants that are satisfied with Extension's services. Number of participants recognizing the significance of Florida agriculture and natural resources to the economy Number of participants recognizing the leading agriculture and natural resources commodities in their local area Number of participants recognizing the significance of Florida agriculture and natural resources to the environment Number of participants recognizing the effects of policy decisions on agriculture and natural resources Number of policy makers increasing knowledge of Florida's agriculture and natural resource industries Indicators for Processing, Distribution, Safety and Security of Food Systems Number of program participants that indicate information is up-to-date and accurate Number of program participants that indicate information was delivered in time to use it Number of program participants that indicate information is relevant to their situation Number of program participants that indicate information is easy to understand Number of program participants that indicate they used Extension information to solve a problem Number of program participants that indicate Extension information solved a problem Number of program participants that are satisfied with Extension's services. Number of processing operations that are aware of required adequate manufacturing practices Number of operations that are capable of conducting effective traceback and recall operations. Number of operations that have appropriate HACCP and/or GAPs programs in place Number of operations that are aware of import/export regulations and awareness of regulations involving the Bio terrorism Act of 2002. Number of operations that regularly conduct training for employees on quality related manufacturing activities Number of operations that regularly conduct training for employees on safety related manufacturing activities Number of transportation operations utilize effective transportation practices Number of operations that can conduct effective traceback and recall operations. Number of operations that are aware of import/export regulations and awareness of regulations involving the Bio terrorism Act of 2002. Number of operation that regularly conduct training for employees on safety related manufacturing activities Number of operations that regularly conduct training for employees on quality related manufacturing activities Number of operations that are aware of import/export regulations and awareness of regulations involving the Bio terrorism Act of 2002. Number of operations that have HACCP and/or GAPs programs in place Indicators for Plant, Animal and Human Protection Number of program participants that indicate information is up-to-date and accurate Number of program participants that indicate information was delivered in time to use it Number of program participants that indicate information is relevant to their situation Number of program participants that indicate information is easy to understand Number of program participants that indicate they used Extension information to solve a problem Number of program participants that indicate Extension information solved a problem Number of program participants that are satisfied with Extension's services. Number of agricultural operations that can identify pest species Number of agricultural operations that use diagnostic services Number of agricultural operations that use appropriate monitoring and sampling techniques Number of agricultural operations that use appropriate pest management Number of agricultural operations that correctly implement diagnostic results Number of agricultural operations that can correctly interpret diagnostic results Number of agricultural operations that use Integrated Pest Management (IPM) Number of participants that successfully complete licensure or re-licensure certification Number on farm operators that understand and use appropriate techniques for agricultural chemicals, fuels, and other products. Number of equipment operators that participate in equipment safety workshops Number of equipment operators that routinely inspect farm equipment Number of owner/operators that have an emergency response plan Number of owner/operators that provide access to equipment manuals Number of agricultural operations that have reduced costs associated with pesticide applications Number of employers that provide protective safety equipment workshops Number of employers that provide incentives for using protective safety equipment Number of employers that have formal disciplinary procedures for not using safety equipment Number of equipment operators that understand and use protective

safety equipment Number of agricultural operations that comply with phytosanitary procedures Number of applicators who understand and use pesticides according to the label.

**Outcome #1**

**1. Outcome Measures**

Indicators for Agricultural Profitability and the Sustainable Use of Environmental Resources Indicator Number of agricultural operators that use appropriate human resource management techniques to improve worker efficiency Number of agricultural operations that use appropriate business management skills. (ie. Accurate record keeping, Financial statements and analysis, Appropriate credit management strategies, Appropriate tax management strategies) Number of agricultural operations that use appropriate production technology Number of agricultural operations that improve product margins Number of agricultural operations increasing yield Number of agricultural operations improving product quality Number of agricultural operations using value added processes Number of agricultural operations that use alternative enterprises Number of agricultural operations that have reduced input costs Number of agricultural operations that utilize efficient irrigation equipment Number of agricultural operations that utilize efficient irrigation methods Number of agricultural operations that utilize appropriate equipment Number of agricultural operations that utilize best management practices for fertilizers, pesticides and water management. Number of Agricultural operators that understand and comply with local, state, and federal regulations. Number of program participants that are satisfied with the information received by Extension Number of program participants that indicate Extension information solved a problem Number of program participants that are satisfied with Extension's services. Indicators for Awareness of Agriculture's Importance to an Economy that Ranges from Local to Global Indicator Number of program participants that indicate information is up-to-date and accurate Number of program participants that indicate information was delivered in time to use it Number of program participants that indicate information is relevant to their situation Number of program participants that indicate information is easy to understand Number of program participants that indicate they used Extension information to solve a problem Number of program participants that indicate Extension information solved a problem Number of program participants that are satisfied with Extension's services. Number of participants recognizing the significance of Florida agriculture and natural resources to the economy Number of participants recognizing the leading agriculture and natural resources commodities in their local area Number of participants recognizing the significance of Florida agriculture and natural resources to the environment Number of participants recognizing the effects of policy decisions on agriculture and natural resources Number of policy makers increasing knowledge of Florida's agriculture and natural resource industries Indicators for Processing, Distribution, Safety and Security of Food Systems Number of program participants that indicate information is up-to-date and accurate Number of program participants that indicate information was delivered in time to use it Number of program participants that indicate information is relevant to their situation Number of program participants that indicate information is easy to understand Number of program participants that indicate they used Extension information to solve a problem Number of program participants that indicate Extension information solved a problem Number of program participants that are satisfied with Extension's services. Number of processing operations that are aware of required adequate manufacturing practices Number of operations that are capable of conducting effective traceback and recall operations. Number of operations that have appropriate HACCP and/or GAPs programs in place Number of operations that are aware of import/export regulations and awareness of regulations involving the Bio terrorism Act of 2002. Number of operations that regularly conduct training for employees on quality related manufacturing activities Number of operations that regularly conduct training for employees on safety related manufacturing activities Number of transportation operations utilize effective transportation practices Number of operations that can conduct effective traceback and recall operations. Number of operations that are aware of import/export regulations and awareness of regulations involving the Bio terrorism Act of 2002. Number of operation that regularly conduct training

for employees on safety related manufacturing activities Number of operations that regularly conduct training for employees on quality related manufacturing activities Number of operations that are aware of import/export regulations and awareness of regulations involving the Bio terrorism Act of 2002. Number of operations that have HACCP and/or GAPs programs in place Indicators for Plant, Animal and Human Protection Number of pr

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	6	0

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

**Issue (Who cares and Why)**

Watermelon growers in the Suwannee Valley have been detecting more frequent infections of powdery mildew in the past 5 years causing significant losses in 2007.

**What has been done**

In preparation for the 2008 season, one agent coordinated efforts with an Extension Pathologist, and Suwannee County Extension agent. Efforts included promoting early scouting, selecting proper fungicides in rotation, and encouraging quick reactions after detection.

**Results**

Extension efforts resulted in prevention of powdery mildew outbreaks on 600 acres of watermelon. Losses in 2007 season resulted in an estimated \$60,000 on those same acres.

**4. Associated Knowledge Areas**

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

- Natural Disasters (drought, weather extremities, etc.)
- Economy
- Appropriation changes
- Government regulations
- Competing Public priorities
- Competing Programmatic Challenges

**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**



#### Awareness of Agriculture's and Natural Resource's Importance to an Economy That Ranges from Local to Global

One of the major issues for Florida agricultural producers and the natural resource industry is that most of the general public takes their food source and natural resources for granted. Less than 2% of the US population is employed in agriculture and related industries and Americans spend less than 11% of their disposable income on food compared to other parts of the world (20 – 50%). Consequently, it is extremely important to have Extension educational programs to introduce the general public and decision makers to the services agriculture and the natural resource industry provides not only in the form of food and fiber but in the environmental services such as aquifer recharge, water storage, wildlife habitat preservation, etc. Important programming efforts included consumer education on food and fiber, agriculture's role in everyday living, agricultural role in environmental issues, and the role of Agriculture in local and regional economics.

Educational program priorities were developed as a result of local advisory committee input. Examples of Extension educational programs that were developed, implemented and delivered to the general public, county commissioners, decision makers and agencies were agricultural tours, Farm City Week events, Ag Venture, and other related activities that provide the general public with information on the importance of agriculture to Florida and the nation in providing safe and affordable food sources and fiber. It is important to point out that there are numerous programs in other areas of Extension that support this focus area but are reported elsewhere.

Educational methods included field tours, demonstrations, group learning events such as seminars, workshops, field days, demonstrations and training events, publications, and websites.

In 2008, more than 10,000 people were reached by educational programs about the importance of agriculture and natural resource industries in Florida. Some impact/success stories examples are as follows:

The departments of Smart Growth and Fire Rescue have in the past not been able to get the ranching community to respond to their questions. Our office has worked to improve the relationships between the government and producers. One local producer refers to us as the conduit and buffer. This year, before an item was to go to the Board of County Commissioners as an amendment to the Comprehensive Land Use, Jeff Jones, director of Smart Growth asked for Extension to facilitate a meeting with landowners. This was done and both parties left with agreement on the amendment. If the landowners had learned of this after the fact, agreement might not have occurred. Chief Richard Collins, Fire Rescue has become a strong supporter of Extension Services. Under a previous Chief, a consultant recommended impact fees that were to be assessed to open land. After bringing this to the attention of the chief, the process was halted and reviewed, saving Fire Rescue a public disagreement and producers from being unfairly taxed. Chief Collins routinely asks to be on the quarterly update to landowners to make sure issues are being addressed before they get out of hand.

- Through surveys with tour participants 97% reported increasing their knowledge about agriculture in Manatee County as compared to their knowledge before attending the tour
- Numerous comments indicating positive verbal feedback about presentations given on the economic values of ecosystem services generated by agriculture to diverse stakeholder audiences indicate successful transmission of information on the value of agriculture and natural resources.
- Youth participating in Ag-Venture programs increased their knowledge by 90% of the dairy industry in Manatee County as determined by a verbal survey following the presentation.
- Agroterrorism, as a man induced disaster, was addressed in two trainings in cooperation with the UC-Davis Inst. for Ag and Food Systems Security. 115 growers, local, state, and federal law enforcement, public health, and other agencies were made aware of this potential issue, which could cause tremendous economic disruption, as well as human safety issues. Agriculture security has risen due to local and regional efforts.
- Through a) participation in festivals, fairs, and special events; b) presentations and tours; and, c) contribution to articles in magazines and newspapers, exposed over a million people to the clam farming industry in Florida. In doing so, have increased a) public awareness of the economic and environmental impacts of this industry, b) communication and interaction with stakeholders, c) appreciation for goods and services from this industry, and d) consumer confidence in and demand for molluscan shellfish products.
- Ag Venture is presented to Clay County 3rd graders in order to increase Clay County youth awareness and

understanding of agriculture and natural resources by: initiating how food, fiber and renewable resource products are produced, as well as, fostering an appreciation for the role agriculture and natural resources plays in their daily lives. In 2008, 547 Clay County 3rd graders enjoyed two hours of education on Bees, Dairy, Florida Forestry, Florida Wildlife, Florida's Water Resources, Beef Cattle By-Products, Vegetables, Plant Propagation, Quail Embryology, Florida's Insects, and Citrus.

- 289 local officials and area citizens participated in the 42nd Annual Santa Rosa County Farm Tour. On the day-long bus tour they learned first-hand of the importance of agriculture and forestry in the county and the issues facing local farmers. This year's tour featured peanut harvesting and the vital role that peanuts play in the economy of Santa Rosa County. An end-of-tour survey showed that 99 percent of participants increased their knowledge of the scope and impact of agriculture in the county. 99 percent rated the information provided on the tour as good to excellent.
- A large proportion of America's population no longer has a link to where their food comes from. Many misconceptions exist with regard to animal production, waste disposal, pesticide use and crop production. Two programs were started to answer some of these misconceptions. One program, "Can Agriculture be Sustainable" was developed for an adult audience and "the Need for Seeds" was created for elementary-aged children. Both programs have seen tremendous success with over 95% of those surveyed saying that they had learned something that they previously did not know, and 85% said that they would adopt at least 1 of the practices mentioned.
- Adult program participants indicate an increased awareness of the livestock industry in Polk County and how it relates to the local and global food supply and economy. This was evaluated based on individual verbal discussions with a sampling of participants following the program. 100% of surveyed participants indicated an increase in awareness.
- 2008 4-H Fall Harvest Days: The four-day activity involved all program areas in the Escambia County Extension office as well as Santa Rosa Extension, Escambia County Parks and Recreation Department, Neighborhood Environmental Services Department, Forestry Services and Escambia County Solid Waste Department. Our local Escambia County 4-H Foundation supported this program financially with a grant of \$5,000. This program targeted 3rd grade students from six public elementary as well as two private schools. Four days of field trips were planned with four workshops each day for the youth to rotate through. Over 22 volunteers assisted with the program and contributed over 96 hours. Four hundred and forty six students attended the program. A curriculum was developed with eight lesson plans to give to teachers to take back to their classrooms. Overall knowledge increase was 33%.
- Through written and verbal survey's participants of the Hendry County City Farm Tour increased their knowledge about the importance of agriculture to the state of Florida and Hendry County as compared to their knowledge before the tour.
- Local officials (28) learned about the economic impacts of agriculture production and agriculture related businesses, the challenges the industry faces from urban encroachment, pests and disease, governmental rulemaking, lower standards allowed for imports and the importance of science and technology to the industry. Written evaluations of the program indicated 100% increased their knowledge by 80% or greater, 30% (9) recognized the importance of citizen involvement in governmental rulemaking effecting agriculture production, and 60% (17) committed to buying local when possible.
- The Lee County Extension collaborated with commodity groups (Beekeepers Association, Small farms Network, Slowfood Southwest Florida, Rare Fruit Society) to host the first 'Taste of Lee' Exhibition in Fort Myers. The inaugural event attracted 2000 visitors who participated in the 'tasting' and sampling of locally produced fruits and vegetables. Visitors selected for evaluation reported a 50% increase in their knowledge of locally available fruits, vegetables and other products, and indicated an interest in purchasing local commodities from producers. A notable increase in the number of individuals interested in farmers markets with local produce was observed following the 'Taste of Lee' Event.

- As a result of a concentrated effort to promote agriculture awareness the 2008 Manatee County Farm City Week reached 2,900 individuals, utilized 302 volunteers, and resulted in 66 media contacts for unknown contact with local residents. Educational programs included an in depth look at vegetable production, Ag-venture, tours, speakers, beef prospect show and classes, a look at the county's seafood industry, an essay and speech contests and others ( program components are detailed in reports of lead agent). Participants indicated increases in knowledge, awareness of the economic value, public policy responsibility, the impact shopping local has on local economy's, and improved the quality of agriculture related youth projects.

#### Processing, Distribution, Safety and Security of Food Systems

Critical to the continued success of Florida's agricultural industry is maintaining the safety, security, quality and efficient distribution of its food commodities. Along with the issue of food safety, the current world environment now requires all producers to consider and aggressively manage food security. Extension's impacts span the entire food sector, ranging from consumers to the food service and processing industries. Increasing partnerships with government, industry, and the media will all impact consumer awareness of food safety and food defense.

Educational programs were developed and delivered to more than 4,000 people. Priorities were established through advisory groups. Educational methods included field visits, office visits, phone consultations, group learning events such as seminars, workshops, field days, demonstrations and training events, publications, and websites. This focus area has been extremely involved in developing Good Agricultural Practices (GAPs) training for field workers and packing plants for fruits and vegetables. The objectives of this focus area are to: 1) Provide business and industry with needed science based information, educational materials and training; 2) provide government and regulatory agencies with leadership in delivering educational programs and provide scientific guidance on regulatory issues; 3) provide non-Florida residents, including international workers and visitors, food safety knowledge to enhance well-being and provide international sites of Florida companies training that will allow future economic success; 4) provide training to UFIFAS faculty and staff to enable them to deliver successful programs around the state, nation and abroad.

Some examples of impacts or success stories from 2008 are:

- Local small acreage poultry producers are developing means to legally serve local market demand for poultry products.
- One hundred percent of participants in the ServSafe training passed the national certification exam for food safety managers. Forty child care providers received in-service certification in sanitation and hygiene. They supervise 110 staff and oversee the care of over 2000 children. Increased knowledge and improved food handling practices reduce the risk of foodborne illness in the children and their families, reducing risks to health and medical costs to the families.
- Our safety newsletter, Safety News and Notes, has become one of our best outreach tools. It goes out to about 3000 people, but clearly it reaches well beyond that. We receive notes from people who are not on the list but want to tell us how they benefitted, and from others who tell us how they used out safety messages and articles in their newsletters and other communications.
- Assisted a Tampa-based manufacturer of canned boiled peanuts in learning how to operate in full compliance with FDA Low-acid Canned Foods Regulations. This enabled the firm to market their products safely to the consuming public with FDA approval.
- Agents from Homeland Security demonstrated the training efficiency of the search beagles in finding contraband (non-narcotic) in luggage. Extension agents had increased awareness of the extent of introduction of invasive species in Florida and the impact on Florida agriculture, and the importance of these prevention programs. This was the first time that several small tomato vegetable growers (both field and greenhouse) participated in our Tomato Packinghouse Managers Workshop, indicating their motivation to continue to provide the safest product possible.
- The objective for the 4th Tomato Packinghouse Managers Workshop, in conjunction with the Florida Tomato Committee, was to familiarize managers responsible for growing, packing and shipping with the newly implemented Audit

Manual related to the Florida Tomato Good Agricultural Practices (T-GAP) and Tomato Best Management Practices (T-BMP) Manual. This program counted as continuing education for these personnel. There were 52 participants in the T-GAP audit session and 43 in the T-BMP audit session. Pre and post-test results indicated that participants improved their knowledge by 7% and 9% for these respective sessions. Three county faculty also participated in these sessions.

- Our two main programs have been the hazard analysis and critical control points (HACCP) and Good Agricultural Practices (GAPs) training programs. Our training of GAPs training program in the state of Florida has reached over 80% of the market in the state. This program has training tomato growers from the state which is now serving as requirement for the State of Florida's DAC. We have successfully developed a new educational delivery system and will have it online in the first quarter of 2009. This new system will enable any person around the world to "self register" and receive a GatorLink ID, which then can be used to take any pre-designated course.
- Sanitary Design Workshop with 3A Sanitary Standards had 200 participants.
- County agents and Extension specialists worked with FDA to conduct week along food safety audits of Tomato GAPs procedures at packing houses. Nine packing houses operations were audited. This will increase effectiveness of agent delivered food safety programs for producers and packing house personnel.

#### Protection Florida from Existing and Emerging Pests and Diseases

It is critical for the agricultural and natural resources industries to be protected from existing and emerging insect pest, diseases, weeds and other exotic pests. Protecting Florida's agricultural, tourist industry, as well as the residents from pest infestations is a complex problem. Ineffective pest management strategies increase costs, fail to eliminate pests and diseases, and are detrimental to the environment. Available pest management options are diverse but virtually all of them rely on timely and accurate pest identification and diagnosis in order to reduce costs and at the same time protect the environment. Integrated pest management (IPM) strategies are used to minimize risks to human health and the environment. Educational programs included pest management strategies, diagnostics, personal safety, regulations, pesticide application technologies and environmental protection. In addition, because of Florida's 75 million visitors annually in the tourism industry, 14 major seaports, 131 public airports and 20 commercial airports (13 of which have international flights), and its sub-tropical climate the introduction of exotic pests and disease is a major threat to Florida's agricultural industries, natural resources industries and its citizens.

Educational program priorities were developed as a result of local advisory committee input. Examples of Extension educational programs that were developed, implemented and delivered to producers, allied industries, the public, and state agencies personnel are: weather, climate and risks; pest management strategies including insect, pathogens, weeds, mosquitoes, vertebrates, and parasites; integrated pest management strategies; invasives; and safety issues. In cooperation with the Forest Stewardship program over 90 participants at two locations (southern and central FL) were provided information relative to identification and integrated management of invasive plant species. Those participants who reported (75) manage a sum of 1,190,622 acres of land. Participants reported that they would use information provided to safely and effectively remove invasive species from their properties.

Educational methods included field visits, office visits, phone consultations, group learning events such as seminars, workshops, field days, demonstrations and training events, publications, and websites. More than 38,000 people were trained in group learning events, one on one consultations either in person, through office visits or on the phone and diagnostics services. In addition there were more than 18,000 e-mail consultations. Due to effective communication linkages with the green industry, Lee County Extension was the first entity to officially verify the croton scale and ficus whitefly in west Florida. The croton scale is a 'new' pest and does not yet have a scientific name. Plant samples sent from the Extension office expanded the host list of the croton scale by 9 native Florida plants. This has led to a developing partnership with the City of Sanibel with regards to protection of their extensive ornamental and uncultivated flora.

Examples of impacts and success stories from some of the programs are as follows:

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- Surviving a food safety inspection is critical for vegetable packing houses. About 15 new food safety auditors were trained and most of them reported higher scores in their food safety self auditing. Generally, businesses scoring high in their self auditing will have good auditing results in their next third party auditing.
- The African Bee Extension and Education Program was initiated in 2007 and hit its full stride in 2008. Through this program, my lab cooperates with employees from the Florida Department of Agriculture and Consumer Services in an effort to educate Florida citizens about the spread and threat of African honey bees. In 2008, we provided information and training to first responders, pest control operators (PCO), homeowners, school children, beekeepers, etc. We estimate that 100,125 people were affected directly by the training/resources we offered with many millions of people affected indirectly. To give an example of the latter, we provided training to PCOs employed by Florida's largest tourist franchise. As a result, the millions of visitors to this franchise's attractions experienced a reduced threat from African bees. This is a real benefit. I was told by my department chair that a Florida resident told him that the AFBEE program "saved his life". The individual was attacked by honey bees earlier this year and, as a result of training provided by the AFBEE program, knew how to respond to the attack. This individual is a living testimony that the AFBEE program is helping Florida citizens cope with the threat of African bees.
- Workshops on "Control of Bed Bugs Using Containerized Fumigation, Heat Treatment, and Other Control Methods" were completed on September 9 and 11, 2008. Both workshops were organized in collaborations with the County Extension Offices (Duval and Pinellas Counties) and conducted in the county extension facilities. Ms. Erin Eckhardt from the Duval Co. Extension Office and Ms. Jane Morse from the Pinellas Co. Extension Office were very instrumental as

the local organizers, handling the logistical details of the meetings at each location. The workshops consisted of day-long programs with both technical presentations and hands-on demonstration on both containerized fumigation and limited heat treatment. Other bed bug control techniques and bed bug biology were also discussed during the workshops. Number of registered participants was 49 at the Tampa/St. Petersburg and 24 at the Jacksonville area workshop, plus extension agents and other county extension office personnel. Presentations covered a varied range of topics related to bed bugs, and provided participants continuous education credits (CEU's) in 3 areas (2 for Core, 2 for GHP and 3 for Fumigation). Participants received hands-on demonstrations on 2 techniques for bed bug control. The first demonstration was on fumigation with the gas sulfuryl fluoride (Vikane®), and the second involved the containment of room furniture within an insulation box and use of household heater to heat-treat the furniture. In both demonstrations, participants had the opportunity to follow and take part in all phases of the process, and discuss pros, cons, and applications of each procedure.

- When shown rust infected sugarcane leaves 78% of attendees were able to distinguish between sugarcane brown rust and sugarcane orange rust and could list the varieties that are most susceptible to sugarcane orange rust.
- Success story- Participated in a field day sponsored by Osceola Co. Extension on new control technologies for the submersed aquatic weeds Hydrilla and Hygrophila at the Kissimmee Lakefront Park Pavilion, 1 July. The goal of the demonstration field day and media event was to keep stakeholders informed on the progress of hydrilla and hygrophila management in the Upper Kissimmee Chain of Lakes. A display booth on hydrilla and hygrophial biocontrol activities was staffed for the duration of the event and educational materials were distributed to attendees. Eighty four (84) elected officials, media personnel, agency personnel and stakeholders were present and got to view exhibits, ask questions and tour research plots and hydrilla infestations on Lake Tohopekaliga by airboat.
- Of the 321 participants registered in the pesticide license certification training program 62% (199) took the pesticide test required for license certification, and 48% (96) got their pesticide license certification.
- 54 tropical fruit growers participated in educational programs with emphasis on insect and disease management and 66 % adopted new cultural and chemical control options in their production systems.
- The Agent successfully provided service to those applying for pesticide licenses by: offering 174 pesticide exams on a monthly basis and by appointment; maintaining current licensing information on the ProHort website, updated considerably and accessed by over 33,000 in 2008; providing in office purchase of 96 pesticide applicator manuals; administering 107 exams for private providers; and answering nearly 1000 phone calls strictly on pesticide licensing as measured by annual contacts.
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- Online access to Continuing Education Units meets the needs of Florida pesticide applicators. Extension Agents around the state have recently begun publishing articles in a popular trade magazine to expand the scope of their programming and decrease the costs of license renewal for pesticide applicators. Not only are these CEUs provided through Extension at no cost to the applicator, but in difficult economic times also decrease travel costs associated with attending in office programs. Nearly 190 CEUs were issued through Hillsborough County Extension Pesticide Applicator Programming in 2008. At an average cost of \$10 per CEU and \$10 in fuel for program attendance representative of alternative options, this program saved pesticide applicators a total of nearly \$3,800.
- We educated Florida growers and other agricultural stakeholders about the occurrence of copper resistance in vegetable bacterial pathogens. It was shown that some of this resistance could be overcome by including maneb or mancozeb in a tank-mix with the copper. This information was distributed to over 200 clientele in extension meetings and industry workshops. The benefit to vegetable growers in increased returns and reduced pesticide costs is approximately 2 million dollars.

#### Key Items of Evaluation

Sustainable Agriculture: Florida A&M University. Approximately 500 goat and cattle producers, received herd health training by field visits, workshops and consultations. This decreased mortality rates by 5% resulting in an economic saving of \$187,000.

#### Agricultural and Natural Resource Industry Profitability and the sustainable Use of Environmental Resources

Agriculture contributes more than \$100 billion dollars to the economy of Florida. Florida producers utilize a little more than 10 million or about 30% of the state's 35 million acres for agriculture production. Commercial forests account for about 37% of the states acreage, national and state forests account for about 10%, and urban/suburban/industrial entities account for the remaining 22.4%. Florida is the 7th leading state in net farm income. Continued sustainability and profitability are extremely important for Florida. There has been continued stress on natural resources, particularly water, and agricultural lands. Land-extensive agriculture is being replaced in part, by high-value specialty fruits, vegetables and nursery products. Agricultural sectors will continue to feel impacts of emerging product forms; shifting consumer preferences; heightened environmental, health and safety concerns; and changing lifestyles. Alternative crops, value-added products, global competition, new processing technologies, and biotechnology will stimulate change and increase opportunities for growth in Florida's agricultural sector. The major issues impacting agricultural industries in Florida and important to its continued sustainability and profitability are:

The tremendous diversity of clientele, commodities (280), size of operation, and sophistication of operations and producers within the state make it difficult to meet all clientele needs.

Water quality, quantity, allocation; and the development, implementation and adoption of Best Management Practices (BMPs).

The design and implementation of pest management (plant, animal, and human) strategies, the detection and design of control strategies of new invasive pest entering the state and pesticide resistance management are important for the sustainability of Florida's agricultural industries.

Rural/urban interface and land-use issues.

Economic viability for producers locally and within the global community.

With the high volume of fresh market fruits and vegetables, food safety issues are a major concern.

Educational program priorities were developed as a result of local advisory committee input. Examples of Extension educational programs that were developed, implemented and delivered to producers, allied industries, and state agencies are: improved production practices; efficient use of fertilizers; efficient use of irrigation practices; efficacious and cost-effective control strategies for insects, diseases and weeds; integrated pest management techniques; introduction of alternative crops and enterprises; animal herd health and production practices. Educational methods included field visits, office visits, phone consultations, group learning events such as seminars, workshops, field days, demonstrations and training events, publications, and websites.

More than 230,000 people attended group events on agronomic row crops, citrus, animal science, forages, aquaculture, forestry, fruit and vegetable crops, ornamentals and turf, and small farm entities. In addition, there were 14,024 field visits, 28,404 office visits and 84,700 phone consultations. More than 78,000 educational materials were prepared. Peanut growers in the three western panhandle counties have traditionally received pod blasting assistance at the West Florida Research and Education Center in Allentown. In early 2008 due to lack of personnel and finances the research center discontinued pod blasting for farmers. To address this issue Extension agriculture agents in Escambia, Santa Rosa and Okaloosa planned, developed and conducted three pod blasting workshops on producer's farms. Research has shown that yields and grade can be increased significantly when peanuts are dug at the right time. Fifty-six producers representing 9,000 acres of peanuts attended the training. Grades increased an average of two points TSMKs from 70 to 72 in follow-up surveys with participants. This equals to \$157,500 in increased income for these producers.

Some examples of impacts/success stories:

- By attending production meetings and field days, 277 producers gained knowledge in variety selection, pest management, pesticide safety, and updated production practices. 79% indicated on post meeting survey they learned how to identify and control insect and disease pests. Evaluations of programs from producers in Okaloosa, Santa Rosa and Escambia County attending Extension production meetings, demonstrations and field days indicated that 80% adopted Extension recommendations for fungicide and variety selection for peanuts and 90% for variety selection for cotton. Producers were able to reduce peanut fungicide use on 25,000 acres of peanuts saving \$18-\$25 dollars per acre. This resulted in savings of \$500,000 in production cost for area producers.

- Commercial fertilizers represent an import input for forage production, but they can also be the most costly resource in a forage-based livestock operation. The cost of fertilizer has increased more than 4-fold since 1960. Fertilizers must be used efficiently so the investment return is optimized. Cost-effective nutrient management strategies that optimize forage yields while protecting water quality are keys for the success of sustainable beef cattle operations in Florida. Pre and post test evaluations indicated that 96% of participants experienced an increase in knowledge of sustainable use of natural resources associated with beef cattle production. Because soil fertility is a key component of pasture sustainability, environmentally sound fertilization programs can help preserving Florida's green ranchlands and maintaining a balance between urban settings, agriculture, and natural resources.
- As a consequence of weed control programs presented throughout the state, over 90% stated that they intended to change a practice related to weed control in improved perennial grass pastures. Many planned to change their techniques with regards to invasive perennial grass weeds, such as cogongrass, realizing that a continued effort is needed to control cogongrass. Others stated that they will implement grazing management and soil fertility strategies that will promote good sward maintenance, thus, limiting the ability of weeds to become established.
- Those attending the Central Florida Weed Field Day applied herbicide to over 80,000 acres in west central Florida in 2008. Average cost per acre for pasture herbicide application is \$12. Florida DOT estimates that it costs about \$15 per acre to mow weeds mechanically and they can buy fuel cheaper than ranchers. It generally takes two mowings per season to achieve successful control or \$30 per acre per year. At this rate of savings, attendees at this program saved approximately \$1.4 million this year by following UF/IFAS recommended pasture weed management protocols. Additionally, one of the newer herbicide alternatives demonstrated at the program is much less volatile than older generation products and therefore poses less threat to nearby environmentally sensitive areas.
- Producers have incorporated research results and now use defined salinity acclimation procedures and effectively market mud minnows to approximately 20 bait retailers. The producers are increasing their production capacity and looking to expand their markets. Approximately 100,000 mud minnows were marketed for \$0.29 to \$0.40 per fish. Demand for mud minnows is approximately 20,000 per week for a single retail bait store located in Sebastian, FL during the flounder season from October through January, and there are multiple bait stores per county. So, there exists great potential for expansion of mud minnow aquaculture.
- Over 25% of the clam growers in 4 counties, or about 70 growers, accessed water quality data either by viewing online or visiting the extension office. With this information, 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. For example, growers have been able to make immediate decisions on whether to plant or transfer nursery seed based on current salinity and water temperature readings. Weather information recorded at the lease areas has allowed growers to decide if conditions are favorable to work on their open-water farms. Over 75% of the clam seed suppliers, or 10 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.
- Many residents in Bradford County have a recreational pond. These ponds require up-keep such as weed control, water quality evaluation and stocking considerations. Bradford, Baker and Union County Extension Agents teamed up to educate clientele on these issues. Eighteen participants attended this educational workshop and after its conclusion, on a scale to 1 to 10 with 10 being excellent, rated this program 9. Sixty-nine percent (12/18) of the participants that returned their evaluation learned where to get their weeds identified and which products they could use to control weeds. Greater than 55% (10/18) of the participants agreed that basic pond management and stocking



considerations were very helpful to or was new information to them. Pond management workshops such as this one will continue in Bradford County.

- The Weather Watch Program had seventy-one agricultural producers sign up for 2007/2008. Cold Protection -savings estimated at reducing water use by 50%. For the 2007/2008 season this amounts to 24 hours (winter had 2 nights below 32 F). 20,000 acre X 2100 gallons/acre/hour (minimum recommended by UF is 2000 gallons/acre/hour with 3000 gallons/acre/hour giving better results at colder temperatures (EDIS document [http://edis.ifas.ufl.edu/document\\_ch182](http://edis.ifas.ufl.edu/document_ch182)) X 24 hours= 1,008,000,000 X 50%= 504,000,000 gallons of water saved @ \$14.17 per acre inch X 504,000,000/27,000 gallons per acre inch = \$264,506.65 saved by citrus growers in Central Florida from the Weather Watch Program. This represents an approximate savings of \$3,725.44 per grower signed up for the Weather Watch Program. This represent over a 3000% return on investment for each grower's monies invested in this program.

- The post-program survey of 34 of 70 responders conducted within four months after the Greening Summit at the Florida Citrus Institute indicated the following level of practice change related to knowledge gained at the program: Grove survey for citrus greening was initiated by 88% of the responders. Removal of citrus greening infected trees was started by 74% of the responders. Asian citrus psyllid management programs were initiated or augmented by 56% of the responders. The end of program survey of 108 of 187 attendees at the six Greening Roadshow programs throughout the state indicated that 78.7% of the responders gained knowledge that would help them do a better job of scouting for citrus greening and its vector the Asian citrus psyllid.

- The winter weather watch program for Polk County citrus growers is a Citrus Extension Program to provide accurate weather information to save water used in citrus cold protection. This program resulted in the 1,285,184,880 to 8,567,899,200 gallons of water saved from depending on winter weather severity. The single daily water used by 8,567,900 to 57,119,328 people based on SWFWMD statistics on daily water use. Polk County alone represents the total reduction in aquifer pumping over 15 to 100 days of residential water use depending on the severity of the winter. Quick facts on water savings: 47,329 to 315,529 acre inches of water not withdrawn from the Floridian aquifer. 1,285,184,880 to 8,567,899,200 gallons of water not withdrawn from the Floridian aquifer. 8,567,900 to 57,119,328 of single individual daily water use not withdrawn from the Floridian aquifer. 15 to 100 days of residential Polk County water use not withdrawn from the Floridian aquifer. All these because of the winter weather watch program in Polk County for citrus.

- Three significant extension efforts in citrus nutrition and irrigation were completed or began in 2008. First a second version of the citrus nutrition bulletin was published in book form, CD and EDIS and contains a total of 12 chapters. Added material includes improved nitrogen recommendations, precision fertilizer application, irrigation scheduling and best management practices. Seminars to review the publication, new recommendations and irrigation scheduling practices were conducted with citrus growers. Recommendations within this publication have been quickly adopted by growers with fertilizer savings of up to 40% per grower. A second effort was education on irrigation scheduling. Two web sites have been developed in association with the Florida Automated Weather Network to inform citrus growers on use of evapotranspiration (ET) for irrigation scheduling. One page displays daily and weekly ET so that citrus growers can understand seasonal changes in crop water use. The second page allows citrus growers to determine the proper site-specific water-balance based irrigation schedule for their grove. A total of 2457 hits on these sites between being put on the server in early March and late December is testament to their popularity and use. This method of irrigation scheduling can result in approximately 20% water savings and prevent fertilizer leaching.

- Although citrus canker and greening have caused a reduction in acreage there is still over 35,000 acres in citrus production in Indian River County. In order to be competitive, the workers need to be trained in Global Gap topics. Most operations cannot afford their own trainer and so a training program was initiated with extension. Over 600 citrus workers were trained in hygiene and Worker Protection Standards which not only saved the owner thousands of dollars but also allowed him to be more competitive in the international market.

- Over the past 20+ years, Florida citrus growers have not used aerial applications that often due to the fact that most of the pests that required control were deep within the tree canopy and thus difficult to control using aerial applications. In our research, we have demonstrated not only that aerial applications are useful for controlling the Asian

citrus psyllid, but that when such applications are done over a large number of acres of citrus simultaneously, psyllid control is greatly enhanced and thus fewer applications of insecticides are needed to gain the desired level of psyllid control where citrus greening disease is present. Many citrus growers throughout Florida have incorporated aerial applications into their psyllid management plans and have even begun working with their neighbors to coordinate aerial applications as we have recommended. The end result is that growers are getting much better control of psyllids by working together, they are reducing the amount of insecticides being applied to the Florida environment and are reducing the overall production costs that are now skyrocketing due to the threat of citrus greening disease.

- 60 tropical fruit growers participated in educational programs with emphasis on plant nutrition/fertilizer and irrigation management and 40% reported they would implement change in their production as a result.
- Initial research results have shown that soil moisture sensor based irrigation control on drip irrigated/plastic mulched vegetable irrigation can reduce wasted water by more than 50% and reduce leaching of nitrate similarly. A project has been started with a private company in Orlando to develop a commercialized system of soil moisture sensors. This system is intended to have a distributed network of soil moisture sensors within a vegetable field. The sensors communicate wirelessly with a central data accumulation point in the field (usually a weather station). The data are then uploaded to a website for use by the farmer in irrigation and fertigation management. The system has been tested on UF/IFAS and has been deployed two seasons in a cooperating grower field in Sarasota County. The grower is very happy with this system even though it is a prototype and we are making numerous improvements. In fact, this grower is willing to invest as much as \$40,000 to pay for such a system to replace the tedious and inaccurate manual method he uses now which consists of a person reading tensiometers in the various fields.
- Anthracnose disease on strawberry has caused two hydroponic farms to suffer total crop loss in 2007. Both farms practiced similar crop production strategies, and suffered similar disasters, yet did not share information due to peer competitiveness. In my field visits in early 2008, I learned that the strawberry plants at the two farm sites infected with anthracnose disease came from the same supplier. Meanwhile, different suppliers were the source of healthy plants for other strawberry farms. For the two farms with total loss last year plus a new (third) enterprise that has recently initiated a hydroponic strawberry farm, I made it clear that they should use a supplier of strawberry plants that has a reputation for not carrying Anthracnose disease. As a result of such information sharing, all three farms now have healthy robust transplant strawberries to start the season strong. For an average of 100,000 plants per farm, with each plant producing 1.5 pounds berries selling at prices ranging from \$4.99 (short-stem) to \$8.99 (long-stem) per pound (average = \$6.99), it saved the farms from total loss and created an estimated income of roughly \$3 million just for one year.
- Manatee County extension is an integral part of the BMP nitrogen rate research team. Past research has shown that the amount of nitrogen fertilizer needed to grow a high yielding tomato crop with seepage irrigation requires approximately 200lbs of N. Historically, Florida growers have used more than this IFAS recommended amount. Through several seasons of multiple N trials with commercial growers in Manatee County research has consistently shown that the same quality crop can be grown with reduced amounts of N. Some Manatee County growers have decreased the nitrogen use rate by approximately 13%. On a 1,000 acre farm approximately \$ 55,000 is saved per season. The reduced application of nitrogen fertilizer also lessens the potential for leaching and conserves an important resource.
- As a result of teaching greenhouse growers new IPM techniques such as, greenhouse IPM, metalized mulch, cultivar selection, insect screen, early scouting, and timely sprays, five (5) growers representing 8 acres reduced losses to TYLCV, TSWV (insect vectored viruses). Estimated savings were \$160,000 from 2006-2007 seasons. One two acre greenhouse tomato farm was assisted by identifying russet mites as a new pest to this operation by Suwannee County Extension. This ID stopped losses that had been incurred up to that point of nearly \$100,000. A five acre greenhouse tomato operation was assisted by identifying a new disease to
- The agent worked with a manager of the field palm nursery having serious nutritional problems with over five hundred seven years old triangle palms. The Agent conducted three field visits, collected samples and took photographs. Plant samples were submitted to the plant diagnostic clinic and the UF IFAS palm specialist was contacted for consultation. The nutritional program was developed for these palms and implemented by the nursery manager. Two months later almost all of these palms were showing significant improvement and symptoms of deficiencies were

disappearing. With the average wholesale price for these palms between \$100.00-150.00, this nursery saved at least \$50,000.

- Extension activities in landscape irrigation have led to rapid distribution of the potential water savings associated with soil moisture sensor (SMS) and evapotranspiration (ET) irrigation controllers. Research at the plot scale has shown potential irrigation water savings of 30% using UF/IFAS irrigation time clock recommendations with an expanding disk rain sensor during rainy periods vs. 15% during dry periods. Similarly, 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 nearly 70% cumulative irrigation savings over two years. As a result of this research and awareness and education efforts detailed here, Manatee County offers rebates on water conservation technology ranging from rain sensors to advanced SMS and ET irrigation controllers. Pasco County has developed an irrigation permit whereby if a soil moisture sensor is used for irrigation control on a new home, the landscape ordinance mandating that only 50% of the landscape be irrigated is waived. Currently, the Lake Jovita development is taking advantage of this new permit on all new construction. The Florida Water Star program is allowing substantial credits in their certification points system for SMS or ET irrigation controllers. The City of Stuart and Toho Water Authority are both offering rebate programs for SMS irrigation controllers. The Miami-Dade Water and Sewer Department is offering rebates on SMS irrigation controllers for homeowners associations. Finally, as mentioned previously, Lakewood Ranch community is conducting a pilot program with 400 SMS controllers being installed and one of the largest communities if not the largest in Florida, The Villages, is now installing SMS controllers on new homes. From 2000-2005, 953,739 new homes were built in Florida, more than any other state in the U.S. In-ground irrigation is standard in nearly all new home construction. As of 2005, there were 8,256,847 housing units in the state, the third most in the U.S. In 2000, approximately 46% were single family detached. If this percentage held relatively constant then as of 2005 there are 3,798,149 single family detached homes in the state with 438,719 new units constructed from 2000 to 2005. In earlier research, we have found that homeowners in Central Florida irrigated on average 2-3 times a conservative estimate of plant needs, which was 5.9 inches per month. If all new homes had one of these types of irrigation control ranging from a rain sensor to a Smart Controller reduction in water use could range from 15% (96,000 gal/yr) to as high as 70% (448,000 gal/yr) per home. If this were extended to all new home construction 2000-2005, savings would range 42 billion gal/yr to 196 billion gal/yr ranging from a low tech control system of a rain sensor to a more advanced type of controller. More conservative irrigators (i.e. homeowners) would be expected to save less than these estimates. For example, we have seen in Southwest Florida that homeowners irrigate much less due to a longer history of enforced day of the week water use restrictions and higher water costs. However, savings could still be as high as 75,000 gal/yr saved per home with the use of a soil moisture sensor irrigation controller.

- Extension trained over 450 growers, landscape inspectors, contractors and maintenance professionals to evaluate trees according to the latest Florida Grades and Standards. This skill will enable them to grow, purchase and properly install quality trees which are a key to improving the sustainability of Broward County's urban forest.

- A milestone was reached during 2008 with the establishment of a fresh vegetable marketing program with district Wal-Mart stores. Beginning 18 months ago Extension worked with the Team Santa Rosa Economic Development Council and other partners to help specialty crop growers meet vendor requirements. Sales began last summer with nine farmers selling watermelons, peppers, sweet corn, cucumbers and other produce in large quantity. Arrangements were made to help small farmers meet requirements and deliver their produce. These locally grown products are sold through eleven Wal-Mart stores under the name "Santa Rosa Fresh" for County producers, and "Florida Fresh" for local growers outside of the County. The program has succeeded well beyond expectations. Sales to Wal-mart by the nine participating producers resulted in an additional \$113,302.28 or over \$12,500 in additional sales per farm.

- The Virtual Field Day Site (<http://vfd.ifas.ufl.edu>) created an opportunity for statewide and national exposure for the Small Farms focus team. The site was one of three examples of innovative distance education projects nationally presented at the National ESP conference. The site was also one of three IFAS sites presented at the UF IT Open House hosted by President Machen. The expansion of the site is continuing with the addition of new modules including: Greenhouse IPM, Drip Irrigation for Small Farmers, Stone Fruit IPM, Pastured Poultry Production, and Organic Production. The UF/IFAS virtual field day web site represents a relatively new delivery method for Extension. The site was launched in 2006 and is an organized collection of concise videos and associated publications. Most of the topics in the site are important to small farms, such as hydroponics, drip irrigation, fruit crops, and other alternative enterprises. The clientele user traffic has increased from 5,000 hits monthly in 2007 to about 14,000 in 2008. The most popular modules in the site include: hydroponic soilless media, floating hydroponic , greenhouse hydroponic field day tour,

irrigation management, greenhouse pest exclusion.

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- Pre and post test evaluations indicated that 100% of the participants in a South Florida Reproduction Management School experienced an average 20% increase in reproduction management knowledge. As a result of their knowledge gain and subsequent adoption of management practices, it is estimated that at least an additional 66,000 lbs of weaned calves will be produced annually. Depending on the cattle market, this should translate to an annual economic increase of between \$50,000 and \$80,000. Approximately 500 goat and cattle producers received herd health training by field visits, workshops and consultations. This decreased the mortality rates by five percent resulting in an economic saving of \$187,000.

**Program #2**

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

**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%	
	<b>Total</b>	100%	100%	0%	

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

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	33.0	1.0	0.0	0.0
<b>Actual</b>	33.5	1.0	0.0	0.0

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

Extension		Research	
<b>Smith-Lever 3b &amp; 3c</b> 336447	<b>1890 Extension</b> 86741	<b>Hatch</b> 0	<b>Evans-Allen</b> 0
<b>1862 Matching</b> 336447	<b>1890 Matching</b> 86741	<b>1862 Matching</b> 0	<b>1890 Matching</b> 0
<b>1862 All Other</b> 336447	<b>1890 All Other</b> 112000	<b>1862 All Other</b> 0	<b>1890 All Other</b> 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**

Extension faculty and staff

Formal/nonformal educators

Volunteers and Youth

Residents /visitors

Local governments

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

**1. Standard output measures**

**Target for the number of persons (contacts) reached through direct and indirect contact methods**

	<b>Direct Contacts Adults</b>	<b>Indirect Contacts Adults</b>	<b>Direct Contacts Youth</b>	<b>Indirect Contacts Youth</b>
<b>Year</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>
<b>Plan</b>	300000	1100000	0	0
2008	157081	293531	0	0

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

**Patent Applications Submitted**

<b>Year</b>	<b>Target</b>
Plan:	0
2008 :	0

**Patents listed**

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

**Number of Peer Reviewed Publications**

	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Plan</b>	30	0	
2008	93	0	93

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

*Not reporting on this Output for this Annual Report*

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	{No Data Entered}	{No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Field trials classroom enrichment
2	Participants implementing BMPs Clientele increasing knowledge Participants using Improved irrigation systems and technology Increased crop yields Participants implementing BMPs Clientele increasing knowledge Number of participants that understand the economic impact of Florida's coastal and marine environment Number of participants that understand the ecological impact of human activity on Florida's coastal and marine environment Number of participants that understand the social and management principles related to Florida's coastal and marine environment Number of participants that improve competencies related to the economic impact of Florida's coastal and marine environment Number of participants that improve skills related to the ecological impact of human activity on Florida's coastal and marine environment Number of participants that improve social and management principles competencies related to Florida's coastal and marine environment Number of participants that implement recommended practices related to improving Florida's coastal and marine environment Number of participants that understand federal regulations related to coastal and marine environment Number of participants that understand state regulations related to coastal and marine environment Number of participants that understand local regulations related to coastal and marine environment



**Outcome #1**

**1. Outcome Measures**

Field trials classroom enrichment

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Condition Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	10	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
134	Outdoor Recreation
133	Pollution Prevention and Mitigation
104	Protect Soil from Harmful Effects of Natural Elements
141	Air Resource Protection and Management
132	Weather and Climate
803	Sociological and Technological Change Affecting Individuals, Families and Communities
131	Alternative Uses of Land
723	Hazards to Human Health and Safety
605	Natural Resource and Environmental Economics
136	Conservation of Biological Diversity
610	Domestic Policy Analysis
403	Waste Disposal, Recycling, and Reuse
216	Integrated Pest Management Systems
135	Aquatic and Terrestrial Wildlife
103	Management of Saline and Sodic Soils and Salinity
608	Community Resource Planning and Development
111	Conservation and Efficient Use of Water
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
112	Watershed Protection and Management
102	Soil, Plant, Water, Nutrient Relationships

**Outcome #2**

**1. Outcome Measures**

Accomplishments and Results

Participants implementing BMPs Clientele increasing knowledge Participants using Improved irrigation systems and technology Increased crop yields Participants implementing BMPs Clientele increasing knowledge Number of participants that understand the economic impact of Florida's coastal and marine environment Number of participants that understand the ecological impact of human activity on Florida's coastal and marine environment Number of participants that understand the social and management principles related to Florida's coastal and marine environment Number of participants that improve competencies related to the economic impact of Florida's coastal and marine environment Number of participants that improve skills related to the ecological impact of human activity on Florida's coastal and marine environment Number of participants that improve social and management principles competencies related to Florida's coastal and marine environment Number of participants that implement recommended practices related to improving Florida's coastal and marine environment Number of participants that understand federal regulations related to coastal and marine environment Number of participants that understand state regulations related to coastal and marine environment Number of participants that understand local regulations related to coastal and marine environment

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	0	0

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

**Issue (Who cares and Why)**

There is a national effort to reduce the harmful elements of agricultural production because of its known impact on the environment and natural resources. The state's rapid population growth rate means that expanding urban areas will increasingly compete with agriculture for finite water supplies. It is well documented that excess fertilizer use, over-watering, and poor horticultural practices can contribute to poor water quality.

**What has been done**

Approximately 75 of the growers using tensiometers are involved in the USDA Natural Resources Conservation Service Environmental Quality Incentives Program Cost Share program which promotes sustainable farm management practices. By improving their irrigation practices these growers may receive the reimbursement up to 75% of their investment in installation of the more efficient irrigation systems and use of the soil moisture monitoring tools. The extension agent and biologist are providing training, calibration and installation of tensiometers for these growers.

**Results**

Scheduling irrigation with tensiometers can save up to 50% of water and about 30% in fertilizer use.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
723	Hazards to Human Health and Safety
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
803	Sociological and Technological Change Affecting Individuals, Families and Communities
103	Management of Saline and Sodic Soils and Salinity
112	Watershed Protection and Management
216	Integrated Pest Management Systems
403	Waste Disposal, Recycling, and Reuse
132	Weather and Climate
141	Air Resource Protection and Management
111	Conservation and Efficient Use of Water

131	Alternative Uses of Land
133	Pollution Prevention and Mitigation
102	Soil, Plant, Water, Nutrient Relationships
104	Protect Soil from Harmful Effects of Natural Elements
605	Natural Resource and Environmental Economics
136	Conservation of Biological Diversity

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

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

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

### **Brief Explanation**

- Natural Disasters (drought, weather extremities, etc.)
  - Economy
  - Appropriation changes
  - Government regulations
  - Competing Public priorities
  - Competing Programmatic Challenges

## **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**

## Environmental Education

The health of Florida's marine resources is being negatively impacted by a number of growing environmental issues. People's lack of awareness and understanding of how ecosystems operate and/or function adds to this problem. Environmental education is key to creating an environmentally/ocean literate society. For greatest impact, environmental education should start early and target those that have the greatest potential to reach a wider audience.

Teachers are agents of change. Providing teachers with the knowledge and skills that help them develop engaging environmental educational activities is critical to helping our youth become future environmentally/ocean literate citizens. The Center for Ocean Sciences Education Excellence or COSEE is a nationwide education program funded by the National Science Foundation. It targets middle school teachers and marine scientists. The University of Florida IFAS/Extension program is one of many COSEE centers around the country and works with other COSEE institutions in Mississippi, Alabama, and Louisiana. At UF, COSEE is a collaboration between the Florida Sea Grant Program and Florida 4-H Youth Development Program. Others such as the Florida Fish and Wildlife Conservation Commission, Florida Institute of Technology, Florida State University, and Harbor Branch Oceanographic Center, and other institutions have also provided support.

In June of 2008, 13 middle school teachers and 6 research scientists attended a week long COSEE Field Institute in Cedar Key, FL. The program covered a variety of important marine and coastal issues (i.e., aquaculture, sustainable fisheries, hurricanes, coastal marshes, etc.) Teachers and scientists worked together to develop engaging, inquiry-based lesson plans based on what they learned during the institute. These lessons be used in a classroom. Scientists learned about teaching pedagogies and teachers learned about field methodologies. Teachers also completed a 6 week online course covering additional topics in coastal and ocean sciences.

Some outcomes and Impacts from this program were:

1. For all 13 teachers - based on pre and post test scores all (100%) improved knowledge of coastal/marine topics and issues covered. All teachers indicated that close to 95% of the presentations and activities in the institute were valuable to very valuable.
2. Follow-up interviews have indicated the majority of these teachers have utilized the information they learned in the COSEE Institute into their classroom lessons.
3. Through post-institute interviews all 6 scientists that attended indicated they gained a better understanding of teaching pedagogies as a result of their participation.

## Sustainable Use of Coastal and Marine Ecosystems

Marine Sustainable Fisheries: The goal of the FSG saltwater angling program was to demonstrate and encourage sustainable fishing practices that reduce the negative impacts of human activity on marine fish populations.

**1. Website.** A Solutions for Your Life web site focused on sustainable fishing concepts was created ( <http://catchandrelease.org>). This website contains short videos in sustainable fishery practices and short fact sheets. Using Google as an indicator of keyword effectiveness and search engine accessibility, typing in the term "catch and release fishing", the catchandrelease.org site appears 15th in the national rankings. Using Urchin, it was found that 25% of visitors spent an average of average of 1 minute, 22 seconds on the page. We are now partnering with Florida Fish and Wildlife Conservation Commission and NOAA Fisheries to make this one of the primary Web locations for sustainable marine recreational fisheries information in the state.

**2. Sustainable Fisheries Workshops.** Eleven workshops held throughout the state, with 207 individuals attending. Six-month post-workshop surveys sought to determine the attendees' level of awareness on the recent fishery management rules for reef fish, the level of confidence in using the sustainable fishing tools, and the likelihood of using the tools in the future. 95.8% of attendees said they where using circle hooks or would in the future; 91% said they were practicing safe handling techniques; 99.2% said they were using fish dehookers, and 86.8% said they were using fish venting tools. The findings suggest that the attendees are very confident that they know how to use the tools and either already use them or are very likely to do so in the future

**3. Sustainable Fishing Kit.** An educational resource kit was developed and distributed to all county-based Sea Grant extension faculty. The kit has also been provided upon request to other Sea Grant Programs in the Gulf region. Requests have been received from as far away as Australia. . The educational resource kit augmented three-panel table-top displays that were produced to depict the concepts of sustainable angling and the use of circle hooks and fish dehookers

## Climate Variability and Change

The new Climate Variability and Change Focus Team was established in 2008. In early January, it organized a set of county-based educational programs, associated with a National Focus on the Nation program that involved more than 1,300 universities and colleagues across the United States. Targeted programs were held in Sarasota, Osceola, and Leon Counties. In May, a distant learning In-service training was conducted that provided the basics of climate change and variability and potential impacts on Florida's agricultural, natural resource and human resources. 20 individuals participated on-site, with a number of faculty participating at off-campus sites. A major Climate Change Summit for faculty was planned for winter 2009.

## Key Items of Evaluation

### Sustainable Use of Freshwater and Terrestrial Ecosystems

Managing Ponds for Fish and Wildlife An intensive two-day intensive pond management in-service training program for 11 new county extension faculty was conducted. Since attending this training program, these agents have assisted more than 200 individual pond owners. A three-day program was held at the Sunbelt Ag Expo in Moultrie, Georgia. More than 150 landowners, from 7 states, attended three 1-hour presentations entitled "Managing Ponds for Great Fishing." Each attendee was provided with 4 to 10 printed publications to assist them in the proper management of their recreational fishing ponds. All indicated increased knowledge of proper pond management techniques/options. An additional nine pond management educational workshops were held throughout Florida, in conjunction with county extension faculty, for more than 400 landowners. Surveys of attendees indicated increased knowledge and intention to use appropriate pond management techniques in the future.

Wildlife Management and Stewardship. A multi-day Master Wildlifer course for 15 adults was held at two locations (in north Florida and south Georgia) to inform land owners about the best available science in game management in the southeastern U.S. Two brochures were created to increase awareness of sources of technical wildlife management assistance and financial incentive programs currently available to private landowners. These brochures and a poster on management of agricultural field borders to promote wildlife were presented at the Sunbelt Ag Expo in Moultrie, GA, where >11,000 visitors walked through the University of Florida exhibit building. To increase understanding and appreciation for wildlife among youth, three programs were conducted on: (1) poisonous plants and venomous animals, (2) pollination services provided by wildlife, and (3) the ecological importance of bats. Specific events included the Wildlife Expo in Milton, FL (40 attendees), Ag Adventure Days in Quincy, FL (327 attendees), and three bat education events (122 attendees). In total, these activities included 7 educational events, resulted in 502 direct contacts, more than 11,000 indirect contacts, and influenced habitat management on an estimated 1,023,000 acres and resulted in \$18,000 dollars earned or saved to landowners in Florida

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**Program #3**

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

**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%	0%	
	<b>Total</b>	100%	100%	0%	

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

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	83.2	1.5	0.0	0.0
<b>Actual</b>	82.9	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
832177	85988	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
832177	85988	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
832177	51015	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**

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

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

Adults interested in engaging in positive youth development

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

**1. Standard output measures**

**Target for the number of persons (contacts) reached through direct and indirect contact methods**

	<b>Direct Contacts Adults</b>	<b>Indirect Contacts Adults</b>	<b>Direct Contacts Youth</b>	<b>Indirect Contacts Youth</b>
<b>Year</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>
<b>Plan</b>	350000	5000000	230000	0
2008	10851	0	798207	443884

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

**Patent Applications Submitted**

<b>Year</b>	<b>Target</b>
<b>Plan:</b>	0
2008 :	0

**Patents listed**

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

**Number of Peer Reviewed Publications**

	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Plan</b>	30	0	
2008	21	0	21

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

*Not reporting on this Output for this Annual Report*

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	{No Data Entered}	{No Data Entered}



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

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

O No.	OUTCOME NAME
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## Accomplishments and Results

1 Number of Youth demonstrating/ reporting moderate levels of attainment of communication skills. Number of youth demonstrating/ reporting moderate levels of attainment/standard on public presentations. Number of youth demonstrating/ reporting moderate levels of attainment on intrapersonal communication skills. Number of youth demonstrating/reporting moderate levels of attainment with acquiring, processing, and interpreting data. Number of youth demonstrating and reporting moderate levels of attainment in problem solving skills. Number of youth demonstrating/ reporting moderate levels of attainment regarding wise use of resources. Number of youth demonstrating/ reporting moderate levels of skill attainment in decision-making. Number of youth demonstrating/reporting moderate levels of goal-setting skills. Number of youth demonstrating/ reporting moderate levels of skill in time management. Number of youth demonstrating/reporting moderate levels of skill attainment in planning and organizing. Number of youth demonstrating practices/ reporting moderate to high levels of respect for diversity. Number of youth demonstrating/ reporting moderate to high levels of attainment in peer collaboration. Number of youth demonstrating/ reporting moderate to high levels of teamwork or group cooperation. Number of youth demonstrating/ reporting moderate to high levels of respect and consideration for others. Number of youth and adults demonstrating/reporting adopting best practices for effective youth-adult partnerships. Number of youth demonstrating/reporting teaching / helping others. Number of youth demonstrating/reporting leading and group facilitation skills. Number of youth demonstrating/reporting leadership skills associated with serving as officers in community or school based clubs, committees, and, councils Number of youth demonstrating/ reporting moderate levels of civic governance and community decision-making. Number of youth reporting hours of community service . Number of youth demonstrating/ reporting moderate levels of volunteer service. Number of youth demonstrating/ reporting moderate levels of attainment regarding interview skills. Number of youth demonstrating/ reporting moderate levels of attainment regarding resume skills. Number of youth demonstrating/ reporting moderate levels of knowledge of career choices. Number of youth demonstrating/ reporting moderate levels of attainment on positive self attitudes. Number of youth demonstrating/ reporting moderate levels of confidence to try new things and feelings of safety. Number of youth demonstrating/ reporting positive practices of character and ethical principles. Number of youth demonstrating/ reporting moderate levels of attainment in respect and consideration for others. Number of youth demonstrating/ reporting moderate to high level of attainment regarding new friendships. Number of youth demonstrating/ reporting moderate levels of conflict resolution skill attainment. Number of youth demonstrating / reporting positive choices among friends. Number of youth demonstrating/ reporting moderate levels of knowlege of ecological systems. Number of youth demonstrating/ reporting moderate levels of knowledge of biological principles. Number of youth demonstrating/ reporting moderate levels of attainment of knowledge/practices in environmental stewardship and conservation principles. Number of youth demonstrating/ reporting moderate levels of knowledge of agricultural production Number of youth demonstrating/ reporting moderate levels of conservation practices. Number of youth demonstrating/ reporting moderate levels of attainment of practices in animal care management Number of youth demonstrating/reporting moderate to high levels of safe and ethical animal care. Number of youth demonstrating/ reporting moderate to high ability level to judge and select quality animals. Number of youth demonstrating moderate to high level of ability in animal exhibition/showmanship. Number of youth demonstrating/ reporting moderate to high levels of knowledge, skill or practices for healthy food choices, preparation and/or safety. Number of youth demonstrating/reporting moderate to high level of knowledge or skills in child care and development practices. Number of youth demonstrating/reporting moderate to high levels of knowledge and skills in clothing construction, care, and selection Number of youth demonstrating/reporting moderate to high level of financial literacy and money management skills. Number of youth demonstrating/reporting moderate level of knowledge of consumer rights and responsibilities. Number of youth demonstrating/ reporting moderate levels of attainment of knowledge, skills or practices for personal safety. Number of youth demonstrating/ reporting moderate levels of attainment of knowledge, skills or improved practices of healthy food choices, food preparation or food safety. Number of youth demonstrating/ reporting increased levels of positive activities promoting physical health and well-being. Number of youth demonstrating/report/apply moderate to high level of knowledge of the scientific inquiry process. Number of youth demonstrating/reporting moderate to high level of ability related to acquiring, processing and interpreting data. Number of youth demonstrating/ reporting moderate to high levels of attainment in computer technology skills. Number of youth demonstrating/reporting moderate to high levels of knowledge of biological principles of living organisms. Number of program participants that indicate satisfaction with Extension's information Number of program participants that are satisfied with Extension's services. Number of hours of training/certification, of 4-H faculty and staff Number of new 4-H participants resulting from marketing efforts Volunteers reporting 4-H program provides awareness of opportunities and events Youth reporting 4-H program provides awareness of opportunities and events Number of Chartered 4-H Clubs Number of youth involved in more than one 4-H event. Volunteers reporting 4-H offers opportunities to meet youth interests Youth reporting 4-H offers opportunities to meet interests Volunteers reporting 4-H provides a supportive environment Youth indicating 4-H has made a positive difference Volunteers indicating 4-H has made a positive difference Youth indicating satisfaction with 4-H curriculum Volunteers indicating satisfaction with 4-H curriculum Youth involved in 4-H more than one year Volunteers involved in 4-H more than one year Youth reporting 4-H provides a safe place for learning and growing Youth reporting 4-H provides a supportive environment Youth reporting 4-H provides opportunities to meet people of other cultures and ethnic backgrounds Volunteers reporting 4-H provides a safe place for learning and growing Youth reporting 4-H program provides awareness of opportunities and events Volunteers reporting 4-H program

provides awareness of opportunities and events Number of new 4-H participants resulting from marketing efforts  
Standards for affirmative action exceeded in youth club (etc.) participation by county. Youth reporting 4-H provides  
opportunities to meet people of other cultures and ethnic backgrounds Volunteers reporting 4-H provides  
opportunities to meet people of other cultures and ethnic backgrounds Number of hours of training/certification, of  
4-H faculty and staff Number of program participants that indicate satisfaction with Extension's information  
Number of program participants that are satisfied with Extension's services. Number of volunteers Number of new  
volunteers Number of volunteers retained Number of volunteers identified and recruited (I) Number of volunteers  
selected and screened (S) Number of volunteers oriented with extension (O)

**Outcome #1**

**1. Outcome Measures**

## Accomplishments and Results

Number of Youth demonstrating/ reporting moderate levels of attainment of communication skills. Number of youth demonstrating/ reporting moderate levels of attainment/standard on public presentations. Number of youth demonstrating/ reporting moderate levels of attainment on intrapersonal communication skills. Number of youth demonstrating/reporting moderate levels of attainment with acquiring, processing, and interpreting data. Number of youth demonstrating and reporting moderate levels of attainment in problem solving skills. Number of youth demonstrating/ reporting moderate levels of attainment regarding wise use of resources. Number of youth demonstrating/ reporting moderate levels of skill attainment in decision-making. Number of youth demonstrating/reporting moderate levels of goal-setting skills. Number of youth demonstrating/ reporting moderate levels of skill in time management. Number of youth demonstrating/reporting moderate levels of skill attainment in planning and organizing. Number of youth demonstrating practices/ reporting moderate to high levels of respect for diversity. Number of youth demonstrating/ reporting moderate to high levels of attainment in peer collaboration. Number of youth demonstrating/ reporting moderate to high levels of teamwork or group cooperation. Number of youth demonstrating/ reporting moderate to high levels of respect and consideration for others. Number of youth and adults demonstrating/reporting adopting best practices for effective youth-adult partnerships. Number of youth demonstrating/reporting teaching / helping others. Number of youth demonstrating/reporting leading and group facilitation skills. Number of youth demonstrating/reporting leadership skills associated with serving as officers in community or school based clubs, committees, and, councils Number of youth demonstrating/ reporting moderate levels of civic governance and community decision-making. Number of youth reporting hours of community service . Number of youth demonstrating/ reporting moderate levels of volunteer service. Number of youth demonstrating/ reporting moderate levels of attainment regarding interview skills. Number of youth demonstrating/ reporting moderate levels of attainment regarding resume skills. Number of youth demonstrating/ reporting moderate levels of knowledge of career choices. Number of youth demonstrating/ reporting moderate levels of attainment on positive self attitudes. Number of youth demonstrating/ reporting moderate levels of confidence to try new things and feelings of safety. Number of youth demonstrating/ reporting positive practices of character and ethical principles. Number of youth demonstrating/ reporting moderate levels of attainment in respect and consideration for others. Number of youth demonstrating/ reporting moderate to high level of attainment regarding new friendships. Number of youth demonstrating/ reporting moderate levels of conflict resolution skill attainment. Number of youth demonstrating / reporting positive choices among friends. Number of youth demonstrating/ reporting moderate levels of knowledge of ecological systems. Number of youth demonstrating/ reporting moderate levels of knowledge of biological principles. Number of youth demonstrating/ reporting moderate levels of attainment of knowledge/practices in environmental stewardship and conservation principles. Number of youth demonstrating/ reporting moderate levels of knowledge of agricultural production Number of youth demonstrating/ reporting moderate levels of conservation practices. Number of youth demonstrating/ reporting moderate levels of attainment of practices in animal care management Number of youth demonstrating/reporting moderate to high levels of safe and ethical animal care. Number of youth demonstrating/ reporting moderate to high ability level to judge and select quality animals. Number of youth demonstrating moderate to high level of ability in animal exhibition/showmanship. Number of youth demonstrating/ reporting moderate to high levels of knowledge, skill or practices for healthy food choices, preparation and/or safety. Number of youth demonstrating/reporting moderate to high level of knowledge or skills in child care and development practices. Number of youth demonstrating/reporting moderate to high levels of knowledge and skills in clothing construction, care, and selection Number of youth

demonstrating/reporting moderate to high level of financial literacy and money management skills. Number of youth demonstrating/reporting moderate level of knowledge of consumer rights and responsibilities. Number of youth demonstrating/ reporting moderate levels of attainment of knowledge, skills or practices for personal safety. Number of youth demonstrating/ reporting moderate levels of attainment of knowledge, skills or improved practices of healthy food choices, food preparation or food safety. Number of youth demonstrating/ reporting increased levels of positive activities promoting physical health and well-being. Number of youth demonstrating/report/apply moderate to high level of knowledge of the scientific inquiry process. Number of youth demonstrating/reporti

## 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

### 3a. Outcome Type:

Change in Action Outcome Measure

### 3b. Quantitative Outcome

Year	Quantitative Target	Actual
2008	25	0

### 3c. Qualitative Outcome or Impact Statement

#### Issue (Who cares and Why)

In 2007, there were 397 dog bites reported to the Charlotte County Animal Control Department. This is a problem found throughout the nation; a Centers for Disease Control and Prevention (CDC) study in 1996 concluded that more than 4.7 million people are bit by dogs annually. According to the CDC, those living in the US have a one in fifty chance of being bitten each year. Dog bites can cause emotional and/or physical pain (including death), and financial hardship. Many victims of these attacks are children, including 170 in Charlotte Co.

#### What has been done

As part of a 4-H Safety Series, the 'Dog Project' is addressing the problem of threatening, dangerous or vicious dogs in Charlotte Co. All members and leaders are completing the AKC's Canine Good Citizen Program with their personal dogs. At the end of the 6-week training, the youth and their dogs will be tested by AKC on 10 points of manners and public acceptability, then certified to go into nursing homes, hospitals, day cares, and other areas as companion dogs.

#### Results

Two members, and their dogs, brought attention to the problem on an area-wide television show, while other members are creating PSAs to be used by local radio stations and poster displays for local pet care markets. Senior members will be going into day care facilities with a dog safety program specifically designed by the teens for that age group. The 4-H members are using the general neighborhood locations of the 'threatening, dangerous, or vicious' categorized dogs, as defined by the Animal Control department, for their targeted areas of educational outreach.

## 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**

- Natural Disasters (drought, weather extremities, etc.)
  - Economy
  - Appropriation changes
  - Government regulations
  - Competing Public priorities
  - Competing Programatic Challenges

#### **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**

### Youth Life Skill Development

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

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

Research studies indicate that the more internal assets and life skills/competencies youth build, the more likely they are to grow up healthy, confident and responsible and less likely to become involved in risky behaviors. Active participation in 4-H helps youth develop their assets and life skills. As evidenced by 25 4-H alumni from St. Lucie County who reported in 2008 that their involvement with 4-H has positively affected their post 4-H success. 4-H gave them one or more lifeskills that they use to benefit their adult lives.

Participation helps to develop assets no matter the delivery mode: community clubs, 4-H in the classroom programs, residential camps, day camps and events/activities. All while insuring that 4-H activities and programs are in accordance with civil rights, equal opportunity, affirmative action, and Americans with Disabilities Act guidelines and meet the needs of stakeholders.

#### Life skills resulting from 4-H Camping Programs

Over 1800 campers attended one of four residential camping facilities and represented 66 of Florida's 67 counties during the 2008 camping season. Youth attending summer camp completed a 25-item questionnaire, broken down into six subscales, designed to measure life skills enhancement. The camping program targeted the following life skills areas:

- (1) self-responsibility;
- (2) self-confidence;
- (3) diversity and respect;
- (4) social skills;
- (5) decision-making and risk management (DMRM); and
- (6) healthy lifestyle choices

Florida 4-H summer camp staff completed post-then evaluations identifying life skill change in youth and Staff surveys were used to validate youths' self-reported enhancement of life skills as a result of 4-H summer camp.

Overall, campers reported that self-responsibility was the life skill most affected by participation in Florida 4-H camping. Just over 87% of campers felt they learned some type of self-responsibility skill as a result of the summer camp experience. Most campers learned how to "take care of my personal belongings." Camp staff reported there was a positive, significant change in the responsibility of youth.

Summer camp helped nearly 85% of youth gain self-confidence skills. After just one week, youth reported having a higher self-esteem and an increase in the ability to try new things. Camp staff validated these results. Seventy-seven (77) percent of youth said that camp helped improve their social skills. As a result of their experience, youth made new friends, worked with others as a team, and talked with others more easily. Results of the camp staff evaluation show that youth did improve social skills as a result of their summer camp experience.

Over 75% of youth reported that camp improved their respect and diversity skills. While at camp, youth learned to respect the property of others and make friends with campers who were different from themselves. Again, camp staff felt there was a positive, significant change in the responsibility of youth.

Almost 74% of youth practiced decision making and risk management skills while at 4-H camp. Youth learned to "ask for help when I need it" and to make decisions based on personal thoughts and feelings instead of majority opinion. Once more, camp staff responses confirmed the developed of these life skills.

Finally, 70% of youth gained an understanding of Healthy Lifestyle choices. Programs taught at camp helped youth to understand the importance of daily exercise, healthy food choices, and monitoring the amount of sugar eaten on a daily basis. From the camp staff perspective, while smaller, there was a change in healthy choices.

Similar to the summer camp staff survey, 4-H Faculty and Volunteer evaluations were also used to substantiate youth responses. In all cases, Faculty and Volunteers confirmed youth responses about life skill attainment at 4-H summer camp.

### Life Skills in Subject Matter (Horticultural Sciences and Gardening)

**Horticultural Sciences & Gardening:** Twelve Florida Counties all highlighted gardening programs teaching life skills in horticultural science as it relates to preparing, growing, harvesting plants and prepare foods from their gardening program with others going one step beyond to also teaching marketing and entrepreneurship. Eighteen thousand, six hundred twelve youth participated in the plant science and gardening project area this past year.

In Dixie County, some 4-H'ers not only grew vegetables for themselves but also went on to market their surplus produce at the Trenton Farmer's Market. Dixie County youth reported that they felt the hobby of gardening helps provide



healthy food for one's diet and the exercise gained from gardening is part of a healthy lifestyle. Pinellas County parents observed their children learning teamwork while coordinating tasks. In addition, the majority of the parents have observed their children eat a wider variety of vegetables as a result of growing their own vegetables. In Bay County, fifty-three (53) 3rd and 5th graders participated in the "Tomatoesphere" Program. This blind study, in cooperation with the Heinz Corporation and the Canadian Space Agency, research the affects of space travel on tomato seeds. The younger students partnered with a local high school to grow the seeds in the high school greenhouse. When the crop was ready to harvest, elementary school students harvested the crop and gave it to the local rescue mission. The Duval County Junior Master Gardener Program, (482 students) took a pre – post-test and demonstrated a 30% gain in score. One 3rd grade teacher indicated that her students increased their FCAT scores by 25 points this past year, the third highest increase in the county. Although there is no way of clearly proving that this program contributed directly to this increase, the teacher felt strongly that this was a key component to their success.

#### Organizational Strategies to improve youth activities

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)

Baker County Extension has conducted a Fall 4-H Kick Off Open house for several years. The Kick off is a marketing event that educates the community about the various educational programs and opportunities for youth in the various delivery methods in 4-H. The event is a team work experience for all the subject matter agents in Baker extension as well as 4-H volunteers, master food volunteers and master gardener volunteers. It is conducted in a "come and go as you please" fair style.

This program won the prestigious IFAS Gold Image Award. In 2008 the program was attended by over 200 individuals and 4-H received 99 new youth enrollments that night. The event was staffed by 25 volunteers and 5 extension personnel. This represents a 312% increase in new 4-H member enrollments and 73% overall enrollment increase. All of the youth enrolling that night were contacted in follow up with 4-H Membership cards, club leader contact information and 4-H brochures. All of the youth attending that night and expressing an interest in the 4-H program but not completing an enrollment form were contacted with 4-H information and an invitation to participate in the program. 8 Adults indicated interest in learning more about volunteering in the program. In the two months since the program 4 of them have began the process of completing their volunteer paperwork for screening and receiving training for project volunteers.

This organizational event and the year round efforts made by extension faculty to achieve the outcomes listed above support a positive outcome demonstrating an improved delivery of extension programs for 2008.

#### Key Items of Evaluation

#### Youth Financial Literacy

Thirteen Florida Counties all highlighted financial literacy in their distinguished 4-H programs. During these programs, youth learned check writing, decision making skills, budgeting, book keeping, career options, and other financial management skills. Sixteen thousand, eight hundred eighty-eight youth participated in the consumer education curriculum area in 2008.

Duval County reported that students and parents have commented positively on how useful this financial literacy program is and how they wished it would have been available when they were in school, saying, "I think the budget and the credit section was very good and provided useful information that the students could identify with using prior knowledge." A Jacksonville Federal Credit Union employee related this impact, "The speaker's bureau is going great. I was at Ed White all day on Tuesday and the response was fantastic. The students were very interactive and we even had one young lady come with her parents to open an account on Saturday after she told them what she learned about credit." Lake County also received similar accolades for their financial literacy programs. Juvenile Probation Officer stated, "I thought the class was an eye-opener for the youths who had no idea what challenges they will face when they become adults. The class was educational, yet still fun for the participants and staff who volunteered. I think most of the youth were surprised and perhaps a little shocked, at what it takes to simply fill out a personal check and balance a check book. One participant reflected, "It showed me life is not as easy as I thought it would be...I'm going to change my living style." Suwannee County 4-H provided an opportunity for youth to understand the connection between dairy farming and dairy products, financial management, saving early in life, and understanding and applying everyday life skills to their own lives. A majority of youth made comments validating the connection about the importance of dairy products and the dairy industry to knowledge gained on financial literacy. Hardee County 4-H had a similar situation with a family starting a 4-H dairy project that has now become an operation earning as much as their father's salary.

#### Youth Leadership and Citizenship

The Santa Rosa County 4-H Ambassador Club applied for a Florida 4-H Foundation Grant for 2008. Their grant proposal "Making the Best CERT Better" was designed to provide funding for opportunities for the 4-H Ambassador Club members to follow-up on a Geographical Informational System (GIS) workshop for 4-H members. Their intention was to use GIS mapping and Geocaching as a resource to be involved in the community and TEEN CERT was one of the planned community involvement activities. However, as the project progressed and the 4-H'ers became aware of the importance of and need for the Teen CERT program, CERT became a primary focus. Through the collaboration of a Santa Rosa County 4-H volunteer, 4-H Ambassador Club and the Santa Rosa County Emergency Operation Center/Citizens Corps Coordinator, 4-H has become involved on the state level. Florida 4-H is working with Florida Homeland Security/Florida Citizen Corps to become a delivery method to train teens across the state in the CERT program and the possibility of Florida 4-H receiving a Teen CERT grant. Santa Rosa County 4-H'ers were recognized as the first Teen CERT members to be certified in Florida. Teen CERT members are considered a team of "pre-responders", who work close to home and are often on the scene before professional responders. They are trained to assess the situation, offer emergency assistance and relay information to responders when they arrive on the scene. Not only may the CERT members assist in saving lives, but they also save thousands of tax payer dollars in a community after a disaster by providing much needed service and sparing the professional responders to deal with the most critical situations. In 2008, 19 4-H members and 11 4-H volunteers completed the Teen CERT training in the topic of youth-adult partnerships. Additionally, Santa Rosa County 4-H received a letter of recognition for the outstanding work done in Teen CERT, disaster preparedness and GIS from Florida's Governor, Charlie Crist.

Charlotte County teen 4-H members also learned about planning for a community. Their program, "How Do You Build a Town?" allowed 4-H'ers to practice, first-hand, many aspects of urban planning while developing their own ranch town similar to a controversial area of their county. Over a series of six classes, the teens were able to plan how they would build a town from the ground up. Topics included: essential elements of a self-sustaining community; types of cities; sustainability and managed growth; community input; land use zoning and codes; and environmental needs. Site visits to the ranch included an evaluation of the current road system, the water system, existing land uses, and the topography of the land. The youth learned techniques of mapping, as they considered their site and the layout of their city with regards to the services and infrastructures they had designated as most desirable for their town. Each member also prepared and presented an oral presentation on their ranch town plan.

**Program #4**

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

**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%	0%	
102	Soil, Plant, Water, Nutrient Relationships	5%	5%	0%	
112	Watershed Protection and Management	5%	5%	0%	
133	Pollution Prevention and Mitigation	5%	5%	0%	
201	Plant Genome, Genetics, and Genetic Mechanisms	5%	5%	0%	
204	Plant Product Quality and Utility (Preharvest)	5%	5%	0%	
205	Plant Management Systems	5%	5%	0%	
206	Basic Plant Biology	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%	
216	Integrated Pest Management Systems	5%	5%	0%	
405	Drainage and Irrigation Systems and Facilities	5%	5%	0%	
602	Business Management, Finance, and Taxation	5%	5%	0%	
603	Market Economics	5%	5%	0%	
604	Marketing and Distribution Practices	5%	5%	0%	
608	Community Resource Planning and Development	5%	5%	0%	
610	Domestic Policy Analysis	5%	5%	0%	
723	Hazards to Human Health and Safety	5%	5%	0%	
802	Human Development and Family Well-Being	5%	5%	0%	
	<b>Total</b>	100%	100%	0%	

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

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	70.0	0.5	0.0	0.0
<b>Actual</b>	57.9	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
581468	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
581468	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
581468	0	0	0

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

**1. Brief description of the Activity**

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

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

Business and Industry

Florida Residents

Government and Regulatory Agencies

UFIFAS Faculty & Staff

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

**1. Standard output measures**

**Target for the number of persons (contacts) reached through direct and indirect contact methods**

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	5000000	6000000	0	0
2008	2268341	1044202	0	0

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

**Patent Applications Submitted**

Year	Target
Plan:	0
2008 :	0

**Patents listed**

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

**Number of Peer Reviewed Publications**

	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Plan</b>	25	0	
2008	56	0	56

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

*Not reporting on this Output for this Annual Report*

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	{No Data Entered}	{No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Number of horticulture professionals that use appropriate irrigation practices. Number of horticulture professionals that use appropriate plant care practices. Number of horticulture professionals that use appropriate turf grass practices Number of horticulture professionals that use appropriate soil management practices Number of horticulture professionals that use integrated pest management strategies Number of horticulture professionals that use appropriate landscape diagnostic techniques Number of horticulture professionals that use chemical equipment appropriately Number of horticulture professionals that use chemicals as recommended by the manufacturer Number of horticulture professionals that receive pesticide certification Number of horticulture professionals that receive pesticide renewal certification Number of horticulture operations that use effective human resource practices Number of horticulture operations that use basic business management skills. (ie. Accurate record keeping, Financial statements and analysis, Appropriate credit management strategies, Appropriate tax management strategies) Number of agricultural operations that use appropriate information technology Number of residents that water efficiently Number of residents that fertilize appropriately Number of residents that mulch Number of residents that use practices to attract wildlife Number of residents that control pests responsibly Number of residents that recycle yard wastes Number of residents that reduce stormwater runoff Number of residents that protect the waterfront Number of residents that design landscapes and choose plants appropriately ("Right Plant Right Place") Number of educational activities conducted by volunteers

**Outcome #1**

**1. Outcome Measures**

Number of horticulture professionals that use appropriate irrigation practices.  
 Number of horticulture professionals that use appropriate plant care practices. Number of horticulture professionals that use appropriate turf grass practices  
 Number of horticulture professionals that use appropriate soil management practices  
 Number of horticulture professionals that use integrated pest management strategies  
 Number of horticulture professionals that use appropriate landscape diagnostic techniques  
 Number of horticulture professionals that use chemical equipment appropriately  
 Number of horticulture professionals that use chemicals as recommended by the manufacturer  
 Number of horticulture professionals that receive pesticide certification  
 Number of horticulture professionals that receive pesticide renewal certification  
 Number of horticulture operations that use effective human resource practices  
 Number of horticulture operations that use basic business management skills. (ie. Accurate record keeping, Financial statements and analysis, Appropriate credit management strategies, Appropriate tax management strategies)  
 Number of agricultural operations that use appropriate information technology  
 Number of residents that water efficiently  
 Number of residents that fertilize appropriately  
 Number of residents that mulch  
 Number of residents that use practices to attract wildlife  
 Number of residents that control pests responsibly  
 Number of residents that recycle yard wastes  
 Number of residents that reduce stormwater runoff  
 Number of residents that protect the waterfront  
 Number of residents that design landscapes and choose plants appropriately ("Right Plant Right Place")  
 Number of educational activities conducted by volunteers

**2. Associated Institution Types**

•1862 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	30	0

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

**Issue (Who cares and Why)**

A significant focus has been placed on the environmental impacts of the horticultural practices of landscape maintenance companies in Florida and the professionals of this industry need access to research based information and training. A recent report submitted to the EPA by the Tampa Bay Estuary Program has cited an estimated contribution of 2024 tons of nitrogen in storm water runoff to Tampa Bay per year by urban fertilizers.

**What has been done**

Efforts of the Tampa Bay Nitrogen Management Consortium to comply with Reasonable Assurances of improvements of water quality in the water shed have been bolstered by the recent development of a model fertilizer ordinance including the requirement of certification in the Best Management Practices for landscape professionals, a program developed by UF/IFAS and administered as part of the Hillsborough County Professional Horticulture Services Program.

**Results**

The report cited a conservative estimate of 4.1% reduction in nitrogen loads as a result of 50% compliance with the ordinance which includes a prohibition of the use of nitrogen fertilizers during the rainy season. The inclusion of an education requirement of this ordinance has also allowed the consortium to apply for a 5% credit in total nitrogen loads for approval by the Florida Dept. of Environmental Protection in meeting water quality standards. Compliance with the ordinance was estimated to have an estimated impact of a 6.7- 396 tons of reduced nitrogen loads to Tampa Bay depending on compliance and actual contributions of urban fertilizer to nitrogen loads.

#### 4. Associated Knowledge Areas

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

#### 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

- Natural Disasters (drought, weather extremities, etc.)
  - Economy
  - Appropriation changes
  - Government regulations
  - Competing Public priorities
  - Competing Programmatic Challenges

#### 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



#### Residential Landscapes including Florida Yards and Neighborhoods (FYN/FFL)

Florida has over 5 million acres of lawns and landscapes, many of which are in close proximity to water bodies, in that most of the population lives near or on the coastal areas of Florida. Sources of high quality ground water underlie virtually all of Florida. Ninety percent of this state's population relies on these ground water resources for their drinking water. Additionally, over 50% of all other water needs including agricultural, industry, mining, and electric power generation are supplied by ground water resources. Ground water also serves as the source for Florida's many springs and provides a significant input to many of Florida's lakes and rivers. Florida's unique geology, sandy soils and ground water aquifer system is prone to contamination from non-point source pollution.

Many of Florida homeowners are not well-informed about the environmental impact of their landscaping practices. At the same time, many residents have placed great importance on landscape appearance for aesthetic and leisure activities. To reduce environmental impacts that may be associated with improper landscape design, installation and maintenance Extension has been charged with the design, delivery and evaluation of Extension educational programs. Additionally, programs have been developed for home-owner associations and builders and developers.

Florida Extension also utilizes a "learn and return" model, which was based on the original Master Gardener program developed in Washington in 1973. By providing education-based instruction methods incorporated with the latest scientific research, the program capitalizes on the desire of Florida citizens to learn more about horticulture in exchange for a predetermined number of volunteer hours returned to the individual county. Florida Master Gardeners are University of Florida-trained volunteer teachers. Master Gardeners provide research-based information to Floridians about gardening-America's most popular pastime. Their information about planning and maintaining urban, suburban, and rural landscapes emphasizes environmental stewardship.

Educational program priorities were developed as a result of local advisory committee input. Examples of Extension educational programs that were developed, implemented and delivered to residents: improved landscape maintenance practices; efficient use of fertilizers; efficient use of irrigation practices; efficacious and cost-effective control strategies for insects, diseases and weeds; integrated pest management techniques; watershed programs and residents impact on them; master gardener programs and Florida Yard and Neighborhood programs. Educational methods included field visits, office visits, phone consultations, group learning events such as seminars, workshops, field days, demonstrations, exhibits, training events, publications, and websites.

More than 1.8 million people attended group learning events. In addition, there were more than 10,000 site visits, 53,000 office visits and 99,000 phone consultations. More than 30,000 educational materials were prepared.

Examples of impacts/Success Stories are as follows:

- A total of 8,497 participants sought assistance from the master gardener plant clinic and soil laboratory during the first year (2008). This included email responses to specific problems for their landscape. Three hundred (300) people were surveyed after receiving service from the plant clinic, soil lab and email questions and 89 of them responded to the survey. This was 30% response rate. Out of this population that responded, 69% indicated that they would make changes in their horticultural practices. In addition, 85% would share this information with others. The survey indicated 22% of the homeowners actually saved \$10 - \$100 as a result of the information they received. This is a savings of \$195.80 - \$1,958.00. Those who took the survey reported that their overall experience of the Volusia County clinic, soil lab and emails were rated 52% excellent, 25% above average, 12% average, and 5% needs improvement-poor (88% average or above).
- Over 55,000 area residents have utilized and or participated in either the Lake County Plant Clinics or programs. When asked if they received good information, time manner and were able to utilize the information received the Plant Clinic survey results showed a 97% satisfaction results. Along with the plant clinics the Horticultural Learning Center Discovery Gardens has been recognized in several publications as an outstanding demonstration gardens for the public to come and learn about horticulture and Florida Friendly practices.
- As a result of consulting with area builders and developers about FYN, three (3) new developments in Alachua installed Florida friendly landscapes in all the new homes built in 2008. Bryton, Weschester and Northpoint developments are using Florida friendly practices and plan to install FYN landscapes in their new projects. By using Florida Friendly landscapes in these developments they are setting the new homeowners up to have low impact sustainable landscapes. These landscapes use less water, fertilizer, and pesticide than traditional yards. The average cost of the Northpoint landscapes were \$1,500. This is about 1/3 the cost of a traditional landscape for a home this size. Northpoint landscapes had no permanent irrigation system, so water use will be significantly less than average.
- We had 527 participants in tours of the demonstration garden who showed through a written evaluation that they learned at least three new site-appropriate plants that they intend to grow. We also had 35 individuals complete an online survey after studying one of our WebPages on plant selection, indicating that they had learned an average of five new plants. Twenty-one participants in the fall demonstration garden house activities indicated that they plan to install

micro-irrigation as a result of what they learned. Exactly 25 residents had their landscape practices formally evaluated through our FYN site visits this year. However, we had several FYN presentations conducted through the year which exposed another 81 residents to the BMP's taught through FYN. The Leon County Extension website is a source of information for clientele. As of December 1, it had 658,206 hits for the year; that's an average of 1,959 each day. The most requested page (46,950) is from the new "Gardening in the Panhandle" newsletter, written by Northwest Extension District Horticulture Agents, including myself. We had 55 new MG class students join the program this year. Fifty-two are still active and about to complete the series of training classes.

- Florida Friendly Landscape Series: The Florida Friendly Landscape Series was taught in conjunction with the Florida Yards and Neighborhoods Agent. The Urban Horticulture Agent teaches a variety of hour-long classes to the residents of Sumter County. Seven classes were taught by the Agent in 2008 ranging from The Good, The Bad, and The Ugly -Insects in Your Yard, Pruning Landscape Trees and Shrubs, Container Gardening, Planting for Winter Color, Wildflowers, Holiday Plants, to Composting Happens. A total of 227 residents attended these teaching events. Landscape professionals were among those attending the Pruning Landscape Trees and Shrubs class. 91% of surveyed participants (79) of the Florida Friendly Landscape Series reported checking their lawn routinely for pest problems, 97% spot treat when having to use pesticides and 66% report choosing soaps and oils over other chemical controls. 35.4% of surveyed attendees also reported decreasing their pesticide use as a result of the Landscape Series. 90% of the Florida Friendly Landscape Series surveyed attendees (79) reported choosing plants based on site conditions (soil types, drainage, light, etc.)

- 55 homeowner irrigation consultations were given. Based on utility company water usage data, each household reduced their irrigation water use by about 41% on average one month after receiving a consultation. This equates to about a 4,700 gallon reduction per household per month and approximately 2,820,000 gallons of water saved per year from those 55 households. This reduction in water use also resulted in an average minimum of \$75 in savings per household per year.

- The primary target audience for "Going Green: Sustainable Living to Improve Natural Resource Stewardship Skills" are residents living along the shoreline of water bodies. Additionally, residents within a watershed bordering major water bodies were also targeted. As a result of educational events, publications and exhibits carried out in 2008, there was heightened awareness of green up action for Florida-friendly living. The 2008 Citrus County Water Customer survey (2,857 respondents) indicated that participants adjusted their irrigation systems for more efficient use and in accordance to water restrictions (45%) and are using Florida-friendly practices when maintaining their landscape.

- Sumter County is one of the fastest growing counties in the nation. Population increase and development has the potential to threaten our natural resources, particularly our water supply. Based on UF research, landscapes typically use about 50% of the water used by households. The Florida Friendly Landscape series was established to educate homeowners to reduce water use in their landscapes. This UF IFAS extension program works with and is partially funded by the Withlacoochee River Basin Board of the South West Florida Water Management District. After an 11 month period, 79 participants were surveyed. 54% of residents surveyed responded they have decreased their water use in their landscapes after attending the Florida Friendly Landscape series. After attending the classes, 94% surveyed stated they now adjust their watering to rainfall or the season and 57 % now water the recommended ½"to ¾"of water when irrigating.

- Outcomes of educational efforts have exceeded program objectives and a collaborative effort among UF/IFAS Collier County Extension Services South Florida Water Management District, Florida Dept. of Environmental Protection and more than 35 private industry entities resulted in the X-treme Makeover, an actual landscape renovation project designed to reflect Florida Yards & Neighborhoods principles. The project was followed closely in print media and the public 'open-house' presentation of the completed landscape renovation featured Senator Burt Saunders and attracted more than 300 area residents. Promotion and the high 'visibility' of the project resulted in increased requests from the public for FYN education. As indicated by program evaluations and post-program tests, 63% of homeowners indicate a change or modification in their current landscape practices as a result of knowledge gained through program attendance.

- 50 Homeowner Associations were signed up by the FYN Water Conservation team for implementing irrigation retro-fits by installing soil moisture sensors to conserve water. In addition, the funding agency, Miami-Dade Water and Sewer Dept., has provided funding for a team to conduct Mobile Irrigation Lab like services (\$160,000) such as pre- and post-evaluations of systems. Approximately, 3,145,500 gallons of water was saved due to the program.

- Water shortages are the driving force behind increased educational programs that target water conservation. Sarasota County Extension, in cooperation with Sarasota County Utilities, Sarasota Bay Estuary Program and the

Southwest Florida Water Management District implemented this program aimed at helping community associations and neighborhoods improve their landscape management practices in October 2000. Of the 381 community associations that received on-site educational programs in the first seven years of this program, 87% reported changes to irrigation system management such as adjusting irrigation systems seasonally, calibrating irrigation system, capping irrigation heads in areas with mature xeric plants and installing or expanding micro-irrigation components. Observed water savings of 4 Community Associations visited during the length of the program was 390,000 gallons per acre annually. Potential future water savings of the 556 associations visited (total acreage approximately 9,050) during the length of the program based on 80% participation ( $9,050 \times 0.8 = 6,744$  acres  $\times 390,000$  gallon / acre  $\times 50\%$ ): 1,411,800,000 gallons yearly, conservatively.

- Three hundred forty six (346) completed surveys were returned of the 479 surveys mailed to participants of Pinellas County Extension's "Compost Happens" workshops. Pinellas County Utilities Solid Waste Recycling Department provides the free compost bins given to participants of these workshops. Eighty three percent (83%) of respondents are using the free compost bin. An estimated 254 large garbage bags (33 gal.) of compostable yard and kitchen waste are diverted from the landfill by this group each month. This represents over 3000 bags per year just in this survey group. A total of 1280 bins have been distributed from 2005 -2008. In addition to saving space in the landfill, these participants use the material that they gain from composting for soil enrichment, potting soil, mulch, and fertilizer, thus improving the water holding capacity of their soil, as well as possibly using less chemical fertilizers and pesticides.
- Choosing the right plants for the right place is the basis of Florida-friendly landscape design. Research indicates that 60% of all residential water use is for outdoor irrigation; in Hillsborough County, this averages \$468 per household per year (including fees and wastewater charges). Residents that attended the Landscape Design workshop learned that by creating a proper landscape design, choosing more drought-tolerant plants, and grouping plants by their water needs, they can reduce their outdoor water needs by 40%-60%. Of the 191 households that attended this workshop in 2008, 67 (35%) indicated they have since adopted more Florida-friendly landscaping practices, saving between \$187 and \$280 annually on their water bills.
- Invitations to participate in a South Central District on-line (Survey Monkey) survey were sent to 684 past participants of Pinellas County Rain Barrel Workshops to assess the water savings from using rain barrels. One hundred fifty nine (159) Pinellas participants responded to the survey. Ninety six percent (96%) of the respondents have installed their rain barrels and use the water collected to water plants in pots, water vegetable gardens, and for washing cars and tools. Survey results also showed that this group conserved 89,596 gallons of potable water per year by using harvested rainwater. According to the US Geological Survey 2000 Report on freshwater withdrawals nationwide, 40% of all water withdrawal is for irrigation. California, Texas and Florida withdrew the most water and together accounted for one fourth of all of the water withdrawn in 2000. It is also estimated that each person uses an average of 90 gallons per day of potable water. The 89,596 gallons of water saved through using rain barrels represents 996 days or 2.7 years worth of water for one person. If these results are extrapolated to the whole survey group, 376,763 gallons of water would be conserved per year or enough water for one person for 11.5 years.
- Twenty-five Community association managers received CEUs for the Community Association Management (CAM) license by attending classes on Irrigation Efficiency, Groundcover Selection, Tree Selection and Tree Maintenance. The purpose of these classes is to educate community managers on how Florida-friendly landscaping principles can be utilized in the communities they manage. Community association managers are instrumental in helping the boards of community associations make decisions about landscape maintenance. The evaluation of the CEU classes revealed that the attending managers control approximately 6,240 acres! Results of studies suggest that the behavioral changes implemented by community associations as a result of the Florida-friendly landscaping program can have a significant impact on water quality (FLDEP 2006 FYN Report). In addition, observed water savings of community associations that have implemented Florida-friendly landscape principles in Sarasota County is approximately 390,000 gallons per acre. Potential future water savings of the communities managed by managers that received the CEU training ( $6,240 \times 390,000$  gallon/acre): 2,433,600,000 gallons annually.
- 1237 residents participated in a FYN workshop in 2008. If each person reduces lawn watering by one day every other week, the savings translates to 310 gallons/week saved by not applying an additional 0.5" of water per 1000 square feet every other week. 26 weeks of 310 gallons/per week  $\times$  1237 resident = 9,970,220 gallons of water saved. The amount saved is equivalent to the capacity of 678 swimming pools, 28 x 14 ft averaging 5' deep.
- The Florida Master Gardeners provided services to a documented 894,144 citizens in Florida last year. On average, each Master Gardener volunteered 91.32 hours in 2008.

## Key Items of Evaluation

### Commercial Horticulture/Urban Forestry Services

The state of Florida includes over 18 million residents, 75 million annual visitors, a unique ecology and climate, and a wide range of plant material grown year round. According to the latest economic impact study (2005), total environmental horticultural industry sales were estimated at \$15.24 billion. Total industry output amounted to \$10.4 billion with \$3.0 billion for wholesale nurseries, \$5.25 billion for landscape services, and \$2.1 billion for horticultural retailers. This industry employs more than 190,000 full time people, including a large Hispanic population.

Florida homeowners and commercial property managers rely on this industry for landscape management of their property. Inappropriate landscape management practices, including water use, chemical applications, and plant selection can negatively impact the environments. Additionally, poor business management practices impact the economic viability of this industry by causing horticultural professionals to fail.

Relying on inappropriate landscape management practices affect the environmental quality for all Floridians. UF/IFAS research and science based Extension educational programs can provide the professional horticultural industry with best management practices and skills necessary to create and manage landscapes, reduce risk to the environment and protect the economic success of the industry.

Educational program priorities were developed as a result of local advisory committee input. Examples of Extension educational programs that were developed, implemented and delivered to landscape and horticultural service providers, allied industries, homeowners, and county and state agencies are: basic plant biology, soil and water relationship; efficient use of fertilizers; efficient use of irrigation practices; efficacious and cost-effective control strategies for insects, diseases and weeds; integrated pest management techniques; pesticide safety and application technologies; best management practices for the 'green industries' and urban forestry sustainable practices. Educational methods included field visits, office visits, phone consultations, group learning events such as seminars, workshops, field days, demonstrations and training events, publications, and websites.

Over 108,000 clientele contacts were made through field visits, office visits, group learning events, phone consultations and e-mail consultations. More than 53,000 people attending group learning events such as seminars and workshops. More than 10,000 educational materials were prepared.

Examples of impacts and success stories from this focus group are as follows:

- A significant focus has been placed on the environmental impacts of the horticultural practices of landscape maintenance companies in the State of Florida and the professionals of this industry need access to research based information and training. A recent report submitted to the EPA by the Tampa Bay Estuary Program has cited an estimated contribution of 2024 tons of nitrogen in storm water runoff to Tampa Bay per year by urban fertilizers. Efforts of the Tampa Bay Nitrogen Management Consortium to comply with Reasonable Assurances of improvements of water quality in the water shed have been bolstered by the recent development of a model fertilizer ordinance including the requirement of certification in the Best Management Practices for landscape professionals, a program developed by UF/IFAS and administered as part of the Hillsborough County Professional Horticulture Services Program. The report cited compliance with the ordinance which includes a prohibition of the use of nitrogen fertilizers during the rainy season. The inclusion of an education requirement of this ordinance has also allowed the consortium to apply for a 5% credit in total nitrogen loads for approval by the Florida Department of Environmental Protection in meeting water quality standards. Compliance with the ordinance was estimated to have an estimated impact of a 6.7- 396 tons of reduced nitrogen loads to Tampa Bay depending on compliance and actual contributions of urban fertilizer to nitrogen loads. The Professional Horticulture Services program of Hillsborough County Extension provides an invaluable link between State and local agencies and the professionals responsible for maintaining Hillsborough County landscapes.
- The agent working with Miami-Dade Public Works Right of Way and Aesthetics & Asset Management Division (RAAM) introduced a more productive way to fertilize trees, palms, hedges, and bedding plants. The county has 69,000

trees located on streets and right of way. The county fertilizes the trees twice a year with six employees. Using the Vortex system allows broadcasting of the fertilizer faster and more efficiently around the plants at the rate recommended by the University of Florida. The RAAM Division saved approximately \$40,000 during 2008 in labor cost.

- Through educational outreach and a state cost-share program, approximately ten percent of Broward County's 400 ornamental plant nurseries agreed to implement BMP's on their farms with the goal of reducing off-site movement of phosphorus which has been shown to cause damage to the Everglades ecosystem.

- During 2008, over 500 Broward County tree trimmers successfully completed a proper tree pruning class offered by Extension. This training helps improve the quality of pruning thereby improving the health and aesthetics of Broward's urban forest. It also helps make the industry safer and more professional. Successful completion of the course is one requirement for obtaining a county tree trimmer license. With their new found credentials, many tree trimmers aspire to earn advanced certification by becoming arborists. As a result, Broward County now has the distinction of having the largest number of certified arborists in the state.

- Provided 32 Educational Programs delivering Best Management Practices/Pest Control Operators information to 985 clients with representative surveys suggesting a consistent 96% satisfaction level; consistent 97%+ knowledge gain level; consistent 95%+ adoption rate of suggested practices.

- Through 2008, 228 different companies and 10 governmental organizations participated in the BMPs program. Continued certification of these professionals will help reduce fertilizer runoff from farms and gardens thereby improving local water quality. Outcomes and impacts were: 799 Green Industries professionals participated in 20 BMPs classes during 2008; the knowledge gain averaged 15% based on the pre/post test score difference. Of particular importance was the average pre-exam grade of 71% vs. the average grade of 86% achieved by those taking the post-exam. Participants went from failing the pre-exam to passing the post-exam with an average grade increase of 15%; a total of 559 voluntary course evaluations were received from 799 participants (70%). Of those submitting evaluations, 96% worked in the lawn care or landscape design business, or some combination thereof. Respondents overwhelmingly agreed (97%) that their knowledge of the Green Industries BMPs and their effect on the lawn care industry was increased. Another 98% of those submitting evaluations promised to use, or already do use, the recommended fertilization rates and methods of application prescribed in the BMPs. Similarly, 89% promised to inform their clients of the recommendations contained in the BMPs manual.

- Herbicide Solutions Team -Escambia County Roads department uses herbicides and weed trimming to manage weeds along county sidewalks. The herbicide currently applied provides poor results and requires monthly retreatment and continual weed trimming. Four members of Roads Department and the Horticulture Agent formed a process improvement team to research and evaluate alternative herbicides for sidewalk weed control. The team gathered data on effectiveness of the current product and then set up two test sites for other products. Data from the new test sites showed that new herbicides provided more residual control. The future application of the new herbicide will reduce the frequency of applications and reduce materials and labor costs for sidewalk maintenance, saving the road department money on this job.

- Needs assessments indicate pesticide applicators desire information on appropriate application of pesticides and fertilizers. The Multi-County Best Management Practice (BMP) programs to pesticide applicators provide needed continuing education units (CEUs) for obtaining and retaining the State of Florida's pesticide licenses. The BMP and IPM (Integrated Pest Management) programs provide UF/IFAS research based information for the proper application of fertilizers and irrigation thereby reducing the potential non-point source pollution from pesticides and fertilizer run-off into storm drainage systems and retention ponds. 68% of participants in the IPM program would adopt the practice of applying the proper amount of fertilizer to ornamentals. 65% of the participants in the IPM scouting program indicated they would adopt scouting methods as a normal part of their routine to provide early detection of insects thereby reducing the amount of pesticide applied and needed. 97% of the participants in the IPM program strongly agreed the material taught met their professional needs. The increased knowledge and ability to detect disease and insects in a timely manner reduces the chance of improper administration of pesticides, decreases the chance of pest resistance which saves landscape companies money and time.

- 668 participants attended 14 seminars dealing with improving commercial landscapes and pest management practices for sustainable communities. Participants liked what they learned: post-class evaluations show the majority (84% to 89 %) rated the topics as "Excellent" to "Good." BMP Overview, Turf Management, Irrigation, Landscape, and Pesticides. Post class evaluations show that 97% of participants increased their knowledge of the topics: 77% (421) said they intend to inform their clients about the fertilizer recommendations and 75% (410) said they intended to use the recommendations in their landscape work.
- The Best Management Practices Certification teaching efforts have had the most significant impact this agent has been involved with during the past five years, both from regulatory and Extension viewpoints. Over 1000 landscape employees have gone through this training, held in Sarasota County and coordinated by Sarasota agent. My role has been to teach the landscape and fertilizer section of the training. Over 80% of participants have received BMP Certification, which meets the regulatory requirements of fertilizer ordinances in Sarasota County and adjacent jurisdictions. Many of these landscape employees either own businesses in Manatee County or have accounts in Sarasota; or, they own Sarasota businesses with accounts in Manatee County. This fully justifies agent's time, especially in view of the positive environmental impact their practice changes may have on Sarasota and Tampa Bay Estuaries, as well as rivers and streams. This one-year follow up survey showed changes in fertilizer use, especially types of nitrogen, timing of application, and methods of application. In addition, most participants see the BMP Certification as an economic asset and seem willing to learn and comply.
- 160 individuals attended landscape BMP (Best Management Practices) workshop classes. Seventy-nine percent (79%) said they learned how to apply fertilizer more accurately. In the Fertilizer Rodeo pre & post quiz (scores were 35% and 79% respectively) only 1 in 31 felt they had been applying fertilizer accurately. Eighty-six percent (86%) passed the post class BMP Naples Landscape Certification exam. Of the participants, who are required by new city regulations to take the class, 90% (post-class survey) said they would recommend the class to other professionals. Overall, this means the classes presented new information in regard to the local estuary systems and how they are connected as a biological network with the home landscapes. Landscapers are applying more accurate fertilizer amounts which means less wasted fertilizer put into the environment and a better plant response when the correct amount is used.
- Participants at a program presented on New Fertilizer Regulations for the Landscape were surveyed on their present use of fertilizers with low phosphorus levels, fertilizers that would comply with new regulations. 71% indicated that they have learned the importance of keeping phosphorus levels low and are using fertilizers that would help to do so. No one expressed concern with complying with the new regulations. At a November meeting of 38 applicators, the group supported the no or low-phosphorus requirements of a new Tallahassee Fertilizer Ordinance. 530 pesticide applicator CEU's were provided to professional applicators in Leon County through Extension programs this year.
- The Charlotte County Extension Service has been tasked with implementing the Green Industries Best Management Practices Training as required by the new Fertilizer Ordinance signed into law on March 18th. The Ordinance was created to improve water quality by reducing the leaching and runoff of nutrients, specifically nitrogen and phosphorus, into local water bodies to minimize negative environmental effects while at the same time maintaining a healthy and sustainable landscape. Extension, sponsors monthly trainings to educate Commercial Fertilizer Applicators on the local County Ordinance, Turf, Irrigation, Landscape and Pesticide BMP's. To date, one-hundred and fifty-seven (157) individuals have completed the training. Of the 157 who completed the training, 97% or 152 received a passing score of 75% or higher and are in compliance. An end-of-program survey documented that one hundred percent (100%) will or already use the recommended fertilization rates and methods of application as presented in the BMP manual.
- Sixty (60) participants increased their knowledge at a workshop where several new and important palm diseases developing in our area including Texas Phoenix Palm Decline were discussed. Also highlighted were the topic of Palm Nutrient Deficiencies and the importance of properly selecting and applying palm fertilizer. A follow-up electronic survey indicated that 91.7% of the respondents Strongly Agreed/Agreed that, as a result of the workshop, they now have an increased knowledge of the identification, sampling methods and scope of the Texas Phoenix Palm Decline and its discovery in Sabal Palms. The survey also documented that 80.9% of the participants Strongly Agreed/Agreed now that they have an increased knowledge of the differences between nutrition deficiencies and disease symptoms. Eighty-three

percent (83%) of the group also noted that they Strongly Agreed/Agreed that they feel more knowledgeable about the latest Palm Fertilization recommendations.

- The Charlotte County Extension Services provided a double feature of safety learning experiences with two offerings "Africanized Honeybees" and "Venomous Creatures". In response to a County request to provide this type of program as a result of a recent Africanized honeybee attack which put the victim in the hospital with over 600 stings, Extension offered two trainings for both Commercial and Consumer audiences. A total of eight-four (84) people attended the two workshops. As a result of the workshops, an end-of-program evaluation documented that 100% of the participants Strongly Agreed/Agreed that they felt more confident in protecting themselves in the event of an encounter with AHBs or other venomous creatures. Ninety-eight percent (98%) also indicated that they Strongly Agreed/Agreed that they planned to adopt one or more safety suggestions that they learned at the workshops.

- It is well documented that excess fertilizer use, overwatering, and poor horticultural practices can contribute to poor water quality. Additionally, poorly managed landscapes are often unattractive, which is important to the marketability of many businesses and organizations. The 130-acre campus of the Florida Institute of Technology (FIT) includes a botanical garden, a natural wetland, and the campus borders the Crane Creek drainage basin, which plays a major role in the water quality of the Indian River Lagoon. The implementation of Best Management Practices can address these issues, so FIT personnel requested a training program for 20 of its landscape employees. Participants learned new skills such as pruning, pest identification, fertilizing, and irrigation. Since the training, 75% of the employees have implemented BMP's on the FIT campus.

- There are 1,668 individuals in Pinellas County that hold a pesticide license. Extension had 1,223 individuals attend classes to re-certify their licenses. This amounts to 73% of license holders coming to Extension for their continuing education. Ninety-nine percent of them came to re-certify their licenses. Pest control services in 2006 accounted for \$26.6 million in value added impacts to the County economy and \$40.5 million in industry output. Having these pesticide licenses has an enormous economic impact for Pinellas County and provides an economic advantage for license holders.

**Program #5**

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

**1. Name of the Planned Program**

Assist Individuals and Families to Achieve Economic Well-being and Life Quality

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

**1. Program Knowledge Areas and Percentage**

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

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

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	63.2	1.2	0.0	0.0
<b>Actual</b>	66.9	11.0	0.0	0.0



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

Extension		Research	
<b>Smith-Lever 3b &amp; 3c</b> 671674	<b>1890 Extension</b> 535162	<b>Hatch</b> 0	<b>Evans-Allen</b> 0
<b>1862 Matching</b> 671674	<b>1890 Matching</b> 535162	<b>1862 Matching</b> 0	<b>1890 Matching</b> 0
<b>1862 All Other</b> 671674	<b>1890 All Other</b> 245388	<b>1862 All Other</b> 0	<b>1890 All Other</b> 0

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

**1. Brief description of the Activity**

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

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

Childcare, after-school, and elder care providers  
Individual and family service personnel  
Parents, couples, and individuals  
UF/IFAS county and state faculty.  
Children and adolescents  
Families with children  
Adults of all ages including those with special needs  
Elderly at-risk persons  
Adults with obesity issues  
High-risk ethnic group.  
Persons with type 2 diabetes  
Food service operators: food handlers (adults; youth); consumers; volunteers, and county faculty  
i. Consumers

- Homeowners
- Prospective homeowners
- Renters
- Temporary/seasonal residents
- Households with child(ren) age 6 years and younger
- Seniors
- Persons with disabilities

ii. Housing professionals

- Developers
- Building/construction professionals
- Housing sales professionals
- Residential property management professionals
- Non-government organizations
- UF/IFAS faculty and staff  
    Extension county faculty

Community organizations

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

**1. Standard output measures**

**Target for the number of persons (contacts) reached through direct and indirect contact methods**

	<b>Direct Contacts Adults</b>	<b>Indirect Contacts Adults</b>	<b>Direct Contacts Youth</b>	<b>Indirect Contacts Youth</b>
<b>Year</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>
<b>Plan</b>	700000	9000000	0	0
2008	679660	208624	0	0

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

**Patent Applications Submitted**

**Year Target**

**Plan:** 0

2008 : 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Plan</b>	30	0	
2008	140	0	140

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

*Not reporting on this Output for this Annual Report*

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	{No Data Entered}	{No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	<p>Number of program participants that indicate satisfaction with Extension's information Number of program participants that are satisfied with Extension's services. Family members will learn strategies to prepare for the changes they face over the course of the family life cycle (e.g., marriage, parenting, retirement, etc.) Individuals will develop the skills needed to manage stress effectively, thereby improving their personal health and relationships. Individuals will learn the knowledge and skills necessary to attain strong, healthy family relationships Participants will develop effective communication skills. Participants will encourage curiosity, exploration and development of problem solving skills in a safe environment. Participants will use positive techniques for guiding children's/teen's behavior. Participants will develop safe/healthy learning environments for children/youth. Participants will balance work and family. Participants will increase their knowledge in subject matter and confidence in teaching. Participants will encourage curiosity, exploration and development of problem solving skills in a safe environment for children in their care. Participants will increase knowledge and skills of social and emotional development for children in their care. Participants will learn teaching methods and how to prepare learning materials for various audiences. Number of program participants who indicate satisfaction with Extension's information Number of program participants who increase knowledge about positive lifestyle changes. Number of program participants who report intent to make one or more positive lifestyle changes. Number of program participants who report one or more positive lifestyle changes. Number of program participants who increase knowledge about health indicators. Number of program participants who improve one or more health indicators. Number of program participants who increase knowledge about recommended food handling practices. Number of program participants who report intent to adopt one or more recommended food handling practices. Number of program participants who report adopting one or more recommended food handling practices. Number of program participants who pass food manager certification exam. Number of program participants who increase knowledge of food resource management. Number of program participants who report intent to adopt one or more food resource management practices. Number of program participants who report having an adequate monthly food supply. Number of program participants that indicate satisfaction with Extension's information Number of program participants that are satisfied with Extension's services. Number of participants purchasing homes Number of participants that understood housing financial documents Number of participants completing required home ownership classes Number of families that developed a spending plan. Number of families with improved financial condition Number of participants resolved credit problem Number of participants that adopt one or more energy efficiency practices Number of participants that adopt one or more practices for home safety Number of participants that maintain appropriate homeowners insurance Number of participants that adopt one or more home maintenance practices Number of participants that understand building codes and regulations related to home maintenance or renovations Number of participants adopting one or more low-impact development principles Number of non-profits that use Extension's information Number of non-profit organizations that indicate that Extension information solved a problem or answered a question. Number of non-profit organizations that are satisfied with Extension's services. Number of new volunteers Number of organizations using best management practices for volunteer development. Number of volunteers identified and recruited (I) Number of volunteers selected and screened (S) Number of volunteers oriented with extension (O) Number of volunteers trained (T) Number of volunteers utilized (U) Number of volunteers recognized for accomplishments (R) Number of volunteers evaluated (E) Number of CBOs with marketing plans Number of organizations with a strategic plan Number of organizations increasing membership Number of organizations increasing public initiatives Number of public policy programs offered Number of organizations increasing public policy programs</p>

**Outcome #1**

**1. Outcome Measures**

Number of program participants that indicate satisfaction with Extension's information  
Number of program participants that are satisfied with Extension's services. Family members will learn strategies to prepare for the changes they face over the course of the family life cycle (e.g., marriage, parenting, retirement, etc.) Individuals will develop the skills needed to manage stress effectively, thereby improving their personal health and relationships. Individuals will learn the knowledge and skills necessary to attain strong, healthy family relationships  
Participants will develop effective communication skills. Participants will encourage curiosity, exploration and development of problem solving skills in a safe environment. Participants will use positive techniques for guiding children's/teen's behavior. Participants will develop safe/healthy learning environments for children/youth. Participants will balance work and family. Participants will increase their knowledge in subject matter and confidence in teaching. Participants will encourage curiosity, exploration and development of problem solving skills in a safe environment for children in their care. Participants will increase knowledge and skills of social and emotional development for children in their care. Participants will learn teaching methods and how to prepare learning materials for various audiences.  
Number of program participants who indicate satisfaction with Extension's information  
Number of program participants who increase knowledge about positive lifestyle changes.  
Number of program participants who report intent to make one or more positive lifestyle changes.  
Number of program participants who report one or more positive lifestyle changes.  
Number of program participants who increase knowledge about health indicators.  
Number of program participants who improve one or more health indicators.  
Number of program participants who increase knowledge about recommended food handling practices.  
Number of program participants who report intent to adopt one or more recommended food handling practices.  
Number of program participants who report adopting one or more recommended food handling practices.  
Number of program participants who pass food manager certification exam.  
Number of program participants who increase knowledge of food resource management.  
Number of program participants who report intent to adopt one or more food resource management practices.  
Number of program participants who report having an adequate monthly food supply.  
Number of program participants that indicate satisfaction with Extension's information  
Number of program participants that are satisfied with Extension's services.  
Number of participants purchasing homes  
Number of participants that understood housing financial documents  
Number of participants completing required home ownership classes  
Number of families that developed a spending plan.  
Number of families with improved financial condition  
Number of participants resolved credit problem  
Number of participants that adopt one or more energy efficiency practices  
Number of participants that adopt one or more practices for home safety  
Number of participants that maintain appropriate homeowners insurance  
Number of participants that adopt one or more home maintenance practices  
Number of participants that understand building codes and regulations related to home maintenance or renovations  
Number of participants adopting one or more low-impact development principles  
Number of non-profits that use Extension's information  
Number of non-profit organizations that indicate that Extension information solved a problem or answered a question.  
Number of non-profit organizations that are satisfied with Extension's services.  
Number of new volunteers  
Number of organizations using best management practices for volunteer development.

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	1	0

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

**Issue (Who cares and Why)**

When people have a better understanding about the role nutrition plays in good health, they can make better food choices. Making better food choices can lead to a better, more healthful diet, which in turn can lead to overall better health and a healthier, more vibrant community. Florida and the nation has a growing elderly population. The elderly are at a high risk for many nutritionally-related diseases. With skyrocketing health care costs, including Medicare and Medicaid, it is in everyone's interest to improve the health of senior citizens.

**What has been done**

1,374 participants attended nutrition classes in 2008 in Manatee County. A class called 'Living Well for Seniors: Teaching Older Adults How to Live Healthier Lives' was geared specifically toward the elderly. The Extension agent and a registered nurse with the Manatee County Health Department co-presented three classes, using PowerPoint and hands-on demonstrations to teach healthy cooking and preparation techniques. The program is offered free of charge to a predominantly low- or fixed-income audience.

**Results**

72% of the participants surveyed in the nutrition classes showed an increase in knowledge about the role of good nutrition. Of the 76 in the senior class, participants reported an increase in knowledge of both the five healthy lifestyle concepts (92%) and the signs and symptoms of nutritionally-related diseases (76%). New behaviors they would most likely adopt are: substituting healthy ingredients for 'traditional' ones in recipes (88%); paring down recipes for one or two people (86%); and including a healthy dessert in their meal plans (78%).

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
703	Nutrition Education and Behavior
805	Community Institutions, Health, and Social Services
802	Human Development and Family Well-Being
701	Nutrient Composition of Food
724	Healthy Lifestyle
803	Sociological and Technological Change Affecting Individuals, Families and Communities
801	Individual and Family Resource Management

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

**External factors which affected outcomes**

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

**Brief Explanation**

- Natural Disasters (drought, weather extremities, etd.)
  - Economy
  - Appropriation changes
  - Government regulations
  - Competing Public priorities
  - Competing Programatic Challenges

## **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**

**Personal Financial Education-** Florida A&M University Cooperative Extension Outreach Program's economic development initiative, the Entrepreneurial Business Development Project (ERBDP) implemented the Rattler Business Success Club (RBSC) in four target communities (Gadsden, Hamilton, Jackson and Madison) with the most economic need. Members commit themselves to improving their personal credit worthiness and financial literacy. To date fifteen individuals with a business entity are enrolled in the club. Initial outcomes are all fifteen have taken a pre-test in credit worthiness and financial literacy, and eleven have completed Individual Work Plans that address the areas that need improvement and the steps to be taken to make those improvements. Member Story: Issue: Member received coaching and mentoring to develop a contracting system to employ independent contractors to assist him with service deliveries. Member has now developed a concrete form and so far has hired 6 independent contractors. Member is working on gathering revenue sales figure for 2008.

Change: Member has been consistently working toward capturing his target 15 counties for fire hose testing services highlighted in the company's business plan. The following is a list of organizations under contract to date: 3 contracts in Jackson County (VFD of Chipley Fl, Walton County (City of Freeport and DeFuniak Springs); West Point Stevens, Inc.; 9 contracts w/ Gadsden County Fire Departments; Chippola College: 11 contracts w/Wakulla County, Skyline Fire Protection & Rescue- Santa Rose County, Gulf Coast Community College and Naval Coastal System in Bay County.

#### Personal and Family Well-being

As with much of the US, Florida has a high number of children ages 3 and under (over 670,000). In Florida, 65% of women with children under age 3 are in the workforce at least part-time, which means that there are many children under age 3 in Florida needing some type of care (National Infant and Toddler Childcare Initiative: <http://www.nccic.org/itcc/states/FloridaFINAL.html>). Working parents need assistance in caring for their youngest dependent family members, particularly through safe, *high quality* care that will benefit their child's learning and development. High quality child care has been associated with positive short- and long-term outcomes for children. Furthermore, the availability of child care allows parents to remain in the workforce who might otherwise need to stay at home with their children if child care was not available. If parents can't work because they need to stay at home with their children, this would likely lead to increases in the utilization of state and federally sponsored social programs that provide a safety net, such as food stamps, WIC, unemployment funds, Medicaid, etc. by families.

Child care providers are required by the state to have basic training and annual updates to be licensed. Further, the state requires that one child care provider have a credential beyond the license for every 20 children.

In 2008 252 child care personnel from across the state received CDA credentialing training or CEU training through Florida Cooperative Extension, and hundreds of others received child care training that may be used for continuing education credit. Program evaluation conducted at each site suggests that participants learned much from the programs that they will be able to implement in the child care setting, and that will improve their ability to provide a quality child care experience for children. Furthermore, getting this training allowed these child care professionals to either gain employment or remain employed in their chosen field, thereby increasing the availability of *quality* child care in the state of Florida.

Forty-nine child care providers participated in the workshop "Growing Up in a Multilingual/Multicultural World." 100% learned something new. They were measured on three variables: 100% indicated they understood the misconceptions of young bilingual learners; 100% have new ideas to try to help a young English Language Learner when they join their class; and 97% felt they could help non-native parents become more comfortable with their teaching style and classroom. A participant in this class stated that she would "learn words and phrases that the child/family use in the home to help make the child feel more comfortable."

Thirty-four child care providers participated in the workshop "Disaster Recovery: Children's Needs." 100% learned something new. They were measured on their knowledge of how children of different ages react (100%) and display stress as well as knowledge of ways to soothe a child's response to stress (100%). A participant in this class remarked, "There are many tools and ideas that I will use. Three of my children [in the classroom] just experienced a traumatic loss in the family. The points shown will help me to explain things better to them...."

#### Key Items of Evaluation



## Family Financial Education

Florida along with the rest of the United States Population is facing a serious economic downturn. Home values are declining, foreclosures are rising. Families are facing higher costs, greater job instability, reduced access to credit, and substantial losses in invested assets. Lack of understanding about financial products, budgeting, credit use, and other issues have harmed consumers. Faced with these challenges, families are trying to maintain their overall economic well being, an increasingly more challenging task. In essence, families need help Managing in Tough Times. Faculty have developed a pocket-sized flipbook addressing several topics relating to family financial management and household production. Families can learn important and practical tips on how to manage household resources.

To date, 10,000 flipbooks have been distributed. An additional 15,000 were printed in anticipation of continuing requests and Saves Week 2009. Almost 10,000 of these were distributed around Florida Saves Week alone. Over 20 counties have been involved, The flipbook is available in English and Spanish and is available online. In fact, extension.org has included the program on its public site as well as through our own websites. This has allowed our program to reach more Floridians and also to reach others throughout the United States. Preliminary evaluation questions have shown that most participants have learned from the class and intend to implement some of the strategies suggested in Managing in Tough Times. In Okaloosa County, we had evaluation forms from 99 participants. On the various knowledge changes, over 90% felt that they had learned some of the key messages we wanted to convey. Our behavioral goals included a commitment to creating a spending plan, living within one's budget, and improving communication about money. Finally nearly 100% planned to share the information they had learned and felt more confident about their ability to manage their finances. Preliminary evaluation questions have shown that most participants have learned from the class and intend to implement some of the strategies suggested in Managing in Tough Times. In Okaloosa County, we had evaluation forms from 99 participants. On the various knowledge changes, over 90% felt that they had learned some of the key messages we wanted to convey. Our behavioral goals included a commitment to creating a spending plan, living within one's budget, and improving communication about money. Finally nearly 100% planned to share the information they had learned and felt more confident about their ability to manage their finances. Additional data continues to arrive from counties.

### Food Safety

Foodborne illnesses continue to be one of the major health concerns in the U.S. (CDC data), especially for persons with immature or compromised immunity such as infants, young children, older adults and persons with certain medical conditions. A majority of foodborne illnesses in the US are due to microbial causes and in Florida about 50% of foodborne illness outbreaks are attributed to restaurants and other commercial food service establishments. Food safety education can reduce the burden of foodborne illness by teaching proper food handling practices to those who handle food in restaurants and other food service establishments. Each year University of Florida IFAS Extension faculty in about 20 counties teach food safety education classes to food handlers using the ServSafe® program. In the last eight years an average of 850 people participated in the program annually.

In 2008, an estimated 750 people participated in the ServSafe® program in 20 counties. The program impacted both changes in knowledge as well as plans to change specific food handling practices to improve food safety in their food establishment.

Based on the post test evaluation surveys collected at the state level from 10% of program participants, more than 95% of the participants evaluated increased their knowledge of food safety. Among the 2008 program participants evaluated to date, 79% passed the certification exam and became certified food protection managers.

One county reported that 96% (n=27) of the participants stated that they plan to improve food safety practices such as frequently washing hands and/or preventing cross-contamination through proper food handling and storage. A follow-up survey was sent to the 27 ServSafe® participants with six (22%) responding. Since the training, all of those responding conducted food safety training for their employees and half purchased food safety posters, created a temperature log, and began recording food temperatures.

A calculation used by the University of Georgia Extension allows an estimation of the economic value of food service educational programs by multiplying the number of establishments reached by food handling programs by the estimated economic burden of a foodborne illness outbreak (\$75,000). In 2008, 25 establishments were reached by the ServSafe® program in Pinellas County (one of 20 counties in Florida offering ServSafe®). Based on the University of Georgia estimation, the economic value of the ServSafe® Manager Certification Training in this one Florida county in 2008 was approximately \$1.875 million (25 x \$75,000).

### Housing

A house can impact the health and financial situation as well as the social and emotional well-being of its occupants. Many households are affected by current economic conditions and Florida is listed as one of the top states with high foreclosure rates which results in declining home and neighborhood environments. Because of its demographic, geographical and current economic situation, Florida faces several different housing challenges including availability of affordable and durable housing, sustainability of homeownership, and home care and maintenance for healthy indoor environmental quality. Two significant programs of statewide Extension Housing programs that are related to those problems are homebuyer education and home care and maintenance education for healthy homes.

In 2008, it was reported that more than 4,100 Florida residents participated in county pre-purchase education programs and home care and maintenance programs, and more than 1,600 individuals and families participated in financial and credit management workshops and counseling. More than 1,900 participants who responded to pre- and post-program survey indicated that the information they received improved their knowledge, and 743 reported that the information actually impacted their behavioral changes. Some major impacts that could be measured included:

- About 150 households applied and qualified for homebuyer assistance program after pre-purchase education workshops;
- More than 1,000 participants developed their budget and/or debt repayment plans after financial management workshops and counseling; and
- More than 460 participants plan to reduce debt systematically within the next six months from the workshops and counseling.

**Program #6**

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

**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
608	Community Resource Planning and Development	20%	20%	0%	
610	Domestic Policy Analysis	20%	20%	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%	
<b>Total</b>		100%	100%	0%	

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

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	8.2	0.5	0.0	0.0
<b>Actual</b>	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
100365	85987	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
100365	85987	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
100365	104000	0	0

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

**1. Brief description of the Activity**

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

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

- Planners/Zoning officials
- General public
- Citizen committees
- Elected officials
- Regional Planning Councils
- Local government
- Technical users such as developers/builders/landowners/engineers
- Florida Association of Counties
- Extension faculty
- League of Cities
- State Legislators
- Post-secondary Students

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

**1. Standard output measures**

**Target for the number of persons (contacts) reached through direct and indirect contact methods**

	<b>Direct Contacts Adults</b>	<b>Indirect Contacts Adults</b>	<b>Direct Contacts Youth</b>	<b>Indirect Contacts Youth</b>
<b>Year</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>
<b>Plan</b>	42000	2800000	0	0
2008	41542	18901	0	0

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

**Patent Applications Submitted**

<b>Year</b>	<b>Target</b>
<b>Plan:</b>	0
2008 :	0

**Patents listed**

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

**Number of Peer Reviewed Publications**

	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Plan</b>	5	0	
2008	18	0	18

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

*Not reporting on this Output for this Annual Report*

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	{No Data Entered}	{No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	<p>Number of program participants that indicate satisfaction with Extension's information Number of program participants that are satisfied with Extension's services. Number of businesses that use appropriate human resource management techniques to improve worker efficiency Number of businesses that use basic business management skills. (ie. Accurate record keeping, Financial statements and analysis, Appropriate credit management strategies, Appropriate tax management strategies) Number of businesses that use appropriate information technology Number of businesses using appropriate marketing strategies Number of groups facilitated Number of alliances and coalitions built Number of leadership and community development trainings received Number of groups/organizations formed Number of issue based campaigns initiated Number of groups/organizations formed Amount of human, fiscal, and other resources mobilized Number of communities that have economic development plans that include business and retention programs. Number of communities that have business and retention programs. Number of jobs retained. Number of new jobs created by existing businesses. Number of businesses that complete an enterprise zone application. Number of policies adopted that are viewed by the business community as business-friendly (e.g., one-stop permitting). Number of programs available that foster local economic development (e.g., micro-loan programs). Number of new business sectors located in a community Job growth in the base sectors (i.e., firms that export goods and services outside the community). Number of businesses that create and adopt a business plan. Number of people that understand/utilize business financial statements Customer satisfaction ratings over time Employee retention rates over time Financial ratios over time (e.g., PM, TAT, ROA, EM, ROE, ROI)</p>

**Outcome #1**

**1. Outcome Measures**

Number of program participants that indicate satisfaction with Extension's information Number of program participants that are satisfied with Extension's services. Number of businesses that use appropriate human resource management techniques to improve worker efficiency Number of businesses that use basic business management skills. (ie. Accurate record keeping, Financial statements and analysis, Appropriate credit management strategies, Appropriate tax management strategies) Number of businesses that use appropriate information technology Number of businesses using appropriate marketing strategies Number of groups facilitated Number of alliances and coalitions built Number of leadership and community development trainings received Number of groups/organizations formed Number of issue based campaigns initiated Number of groups/organizations formed Amount of human, fiscal, and other resources mobilized Number of communities that have economic development plans that include business and retention programs. Number of communities that have business and retention programs. Number of jobs retained. Number of new jobs created by existing businesses. Number of businesses that complete an enterprise zone application. Number of policies adopted that are viewed by the business community as business-friendly (e.g., one-stop permitting). Number of programs available that foster local economic development (e.g., micro-loan programs). Number of new business sectors located in a community Job growth in the base sectors (i.e., firms that export goods and services outside the community). Number of businesses that create and adopt a business plan. Number of people that understand/utilize business financial statements Customer satisfaction ratings over time Employee retention rates over time Financial ratios over time (e.g., PM, TAT, ROA, EM, ROE, ROI)

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	10	0

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

**Issue (Who cares and Why)**

Sustainable Organizations and Communities-Florida A&M University - In early 2004 Mr. B.B. from Monticello, Florida (Jefferson County) contacted the Entrepreneurial Rural Business Development Project (ERBDP) requesting assistance in helping him organize a 501 (c) 3 organization to decrease the high rates of poverty in Jefferson County. Mr. B.B. noted that Jefferson County has limited infrastructure to support entrepreneurial development, elderly support services, and literacy education for youth and adults. Additionally, he felt the community needed non-profit and tax-exempt development workshops to stimulate community awareness and investment in the process.

**What has been done**

ERBDP's intervention consisted of developing a Florida non-profit application and federal tax-exempt application for Mr. B.B. and providing community entrepreneurial development training, business interest assessment and non-profit development training to the community and other stakeholders. Additionally, ERBDP facilitated a mentoring partnership between Mr. B.B. and one of our more seasoned clients (Mr. C.S. of Gadsden County).

**Results**

Results: December 2004, Mr. B.B.'s initiative to decrease poverty in Jefferson County received Federal designation as a 501 (c) 3. The economic impact of Innovative Partners Coalition, Inc. on Jefferson County is evident by three events that have produced financial resources and social services for the community that would otherwise not have occurred. The first event, in 2006 Mr. B.B.'s Organization acted as the service delivery vehicle for a Women's Health Initiative, focusing on the benefits of dulas (midwives) as an alternative to more traditional prenatal and pregnancy delivery intervention. The organization receives a yearly stipend of \$700.00. The second event, another ERBDP client, Mrs. M.P. requested ERBDP's assistance in applying for an abstinence prevention grant. Being a new organization, Mrs. M.P. needed another organization with at least two years of history as a 501 (c) 3 to serve as the fiscal administrator for the grant. ERBDP recommended Mr. B.B. to Mrs. M.P. since his organization had been in existence long enough to meet the eligibility criteria. As a result of the partnership, they were awarded the abstinence grant to be administered in Jefferson County. As the fiscal agent, Mr. B.B.'s organization received 10% of the award amount.

The third event occurred on March 1, 2008; Mr. B.B.'s organization was awarded \$48,000.00 to administer Title V Department of Health Abstinence Until Marriage grant to be administered in Jefferson County. The award amount covers a three-month period (90 days), \$16,000.00 per month to administer and implement the grant. Mr. B.B. selected Mrs. M.P.'s organization to be one of two sub-contractors for the new award.

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
723	Hazards to Human Health and Safety
802	Human Development and Family Well-Being
803	Sociological and Technological Change Affecting Individuals, Families and Communities
806	Youth Development
608	Community Resource Planning and Development
902	Administration of Projects and Programs
724	Healthy Lifestyle
903	Communication, Education, and Information Delivery
805	Community Institutions, Health, and Social Services
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 Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

##### Brief Explanation

- Natural Disasters (drought, weather extremities, etc.)
- Economy
- Appropriation changes
- Government regulations
- Competing Public priorities
- Competing Programmatic Challenges

#### 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 Organizations and Communities**-Florida A&M University - In early 2004 Mr. B.B. from Monticello, Florida (Jefferson County) contacted the Entrepreneurial Rural Business Development Project (ERBDP) requesting assistance in helping him organize a 501 (c) 3 organization to decrease the high rates of poverty in Jefferson County. Mr. B.B. noted that Jefferson County has limited infrastructure to support entrepreneurial development, elderly support services, and literacy education for youth and adults. Additionally, he felt the community needed non-profit and tax-exempt development workshops to stimulate community awareness and investment in the process.

ERBDP's intervention consisted of developing a Florida non-profit application and federal tax-exempt application for Mr. B.B. and providing community entrepreneurial development training, business interest assessment and non-profit development training to the community and other stakeholders. Additionally, ERBDP facilitated a mentoring partnership between Mr. B.B. and one of our more seasoned clients (Mr. C.S. of Gadsden County).

Results: December 2004, Mr. B.B.'s initiative to decrease poverty in Jefferson County received Federal designation as a 501 (c) 3. The economic impact of Innovative Partners Coalition, Inc. on Jefferson County is evident by three events that have produced financial resources and social services for the community that would otherwise not have occurred. The first event, in 2006 Mr. B.B.'s Organization acted as the service delivery vehicle for a Women's Health Initiative, focusing on the benefits of dulas (midwives) as an alternative to more traditional prenatal and pregnancy delivery intervention. The organization receives a yearly stipend of \$700.00. The second event, another ERBDP client, Mrs. M.P. requested ERBDP's assistance in applying for an abstinence prevention grant. Being a new organization, Mrs. M.P. needed another organization with at least two years of history as a 501 (c) 3 to serve as the fiscal administrator for the grant. ERBDP recommended Mr. B.B. to Mrs. M.P. since his organization had been in existence long enough to meet the eligibility criteria. As a result of the partnership, they were awarded the abstinence grant to be administered in Jefferson County. As the fiscal agent, Mr. B.B.'s organization received 10% of the award amount.

The third event occurred on March 1, 2008; Mr. B.B.'s organization was awarded \$48,000.00 to administer Title V Department of Health Abstinence Until Marriage grant to be administered in Jefferson County. The award amount covers a three-month period (90 days), \$16,000.00 per month to administer and implement the grant. Mr. B.B. selected Mrs. M.P.'s organization to be one of two sub-contractors for the new award.

## Key Items of Evaluation

**Economic Development**- In 2008, Florida A&M University Cooperative Extension Outreach Program's economic development initiative, the Entrepreneurial Business Development Project (ERBDP) received average funding of \$110,000.00 from the USDA-RD-RBS 1890 Land Grant Institution's REOD Entrepreneurial Initiative. The purpose of the funding is to deliver business and economic development and expansion technical assistance to limited resource rural residents. ERBDP utilized the funding (\$110,000.00) to provide technical assistance to individuals who needed business and economic development expansion assistance. The recipients of ERBDP's technical assistance, generated revenue totaling \$404,250.00 through their business enterprises. For example, Ms. IB (non-profit) operates a home care assistance program in Jackson County Florida generating over \$75,000 per quarter. Consequently, Jefferson, Gadsden, and Jackson County communities are currently being infused with new dollars directly attributed to ERBDP's \$110,000.00 grant award.

**Program #7**

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

**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%	0%	
610	Domestic Policy Analysis	10%	10%	0%	
802	Human Development and Family Well-Being	10%	10%	0%	
803	Sociological and Technological Change Affecting Individuals, Families and Communities	10%	10%	0%	
805	Community Institutions, Health, and Social Services	10%	10%	0%	
806	Youth Development	10%	10%	0%	
901	Program and Project Design, and Statistics	10%	10%	0%	
902	Administration of Projects and Programs	20%	20%	0%	
903	Communication, Education, and Information Delivery	10%	10%	0%	
	<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>0%</b>	

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

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	55.2	0.5	0.0	0.0
<b>Actual</b>	32.9	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
330352	0	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
330352	0	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
330352	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**

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

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

**1. Standard output measures**

**Target for the number of persons (contacts) reached through direct and indirect contact methods**

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	64000	2500000	0	0
2008	250535	251829	0	0

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

**Patent Applications Submitted**

Year	Target
Plan:	0
2008 :	0

**Patents listed**

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

**Number of Peer Reviewed Publications**

	Extension	Research	Total
Plan	10	0	
2008	20	0	20

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

*Not reporting on this Output for this Annual Report*

Year	Target	Actual
2008	{No Data Entered}	{No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	<p>Number of program participants that indicate information is up-to-date and accurate                      Number of program participants that indicate information was delivered in time to use it                      Number of program participants that indicate information is relevant to their situation                      Number of program participants that indicate information is easy to understand                      Number of program participants that indicate they used Extension information to solve a problem                      Number of program participants that indicate Extension information solved a problem                      Number of program participants that are satisfied with Extension's services.                      Number of faculty using appropriate evaluation procedures                      Number of faculty with activities planned, implemented and evaluated by volunteers.                      Number of faculty with volunteers leading other volunteers.                      Number of faculty using effective volunteer development strategies.                      Number of faculty using appropriate technology                      Number of faculty using appropriate delivery methods                      Number of faculty utilizing appropriate marketing methods and techniques                      Number of faculty and staff receiving personal growth development                      Number of faculty satisfied with their job.                      Number of Faculty and Staff with high levels of performance                      Number of planning sessions that include advisory members                      Number of planning sessions that include governmental officials                      Number of planning sessions that include faculty and staff                      Number of participants that are satisfied with the information received from Extension                      Number of participants that solved a problem using Extension's information.                      Number of educational activities that involve multiple faculty/collaborators.                      Number of new initiatives funded by grants and contracts                      Number of new initiatives funded by county government                      Number of new initiatives funded by state government                      Number of extension positions</p>

**Outcome #1**

**1. Outcome Measures**

Number of program participants that indicate information is up-to-date and accurate  
 Number of program participants that indicate information was delivered in time to use it  
 Number of program participants that indicate information is relevant to their situation  
 Number of program participants that indicate information is easy to understand  
 Number of program participants that indicate they used Extension information to solve a problem  
 Number of program participants that indicate Extension information solved a problem  
 Number of program participants that are satisfied with Extension's services.  
 Number of faculty using appropriate evaluation procedures  
 Number of faculty with activities planned, implemented and evaluated by volunteers.  
 Number of faculty with volunteers leading other volunteers.  
 Number of faculty using effective volunteer development strategies.  
 Number of faculty using appropriate technology  
 Number of faculty using appropriate delivery methods  
 Number of faculty utilizing appropriate marketing methods and techniques  
 Number of faculty and staff receiving personal growth development  
 Number of faculty satisfied with their job.  
 Number of Faculty and Staff with high levels of performance  
 Number of planning sessions that include advisory members  
 Number of planning sessions that include governmental officials  
 Number of planning sessions that include faculty and staff  
 Number of participants that are satisfied with the information received from Extension  
 Number of participants that solved a problem using Extension's information.  
 Number of educational activities that involve multiple faculty/collaborators.  
 Number of new initiatives funded by grants and contracts  
 Number of new initiatives funded by county government  
 Number of new initiatives funded by state government  
 Number of extension positions

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	10	0

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

**Issue (Who cares and Why)**

Florida has a major, ongoing investment in IPM and its base biological control strategy. However, most of the work is accomplished by individuals who develop and pursue independent projects, rather than by coordinated, multidisciplinary and multi-organizational teams. This fragmentation has limited the visibility, financial support and effectiveness of IPM in Florida, particularly highly promising large-scale projects. As a result, associated Extension programs may lack the demonstration projects necessary to implement new, reliable, cost-effective IPM technologies.

**What has been done**

The IPM website was created to help coordinate UF/IFAS IPM research and Extension by communicating activities, opportunities and successes. It is designed to assist the target audiences with IPM education and training by making information on alternative pest management technologies more accessible. The website contains a wide range of educational materials and up-to-date information on IPM practices, with special emphasis on Florida.

**Results**

The overall goal is to protect Florida's fragile ecosystems, conserve our natural resources, and assure environmental safety. The website is becoming very useful for IPM practitioners around the world based on user feedback and Web statistics. The site is divided into three primary sections: agriculture, community and natural area IPM, with a fourth section on applying IPM. There are sections for Extension resources, grant funding, employment, success stories, projects, reports and selected links. It continues to grow in content and activity, and is constantly updated by UF/IFAS staff members and students.

#### 4. Associated Knowledge Areas

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

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

##### External factors which affected outcomes

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

##### Brief Explanation

- Natural Disasters (drought, weather extremities, etc.)
  - Economy
  - Appropriation changes
  - Government regulations
  - Competing Public priorities
  - Competing Programatic Challenges

#### 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

#### Program Development, Implementation and Evaluation

Extension faculty are required by UF/IFAS to demonstrate the effectiveness of their programs. Many faculty do not have a background in evaluation and data analysis. Many faculty do not have knowledge of or access to the various evaluation options available to them. TurningPoint is an audience response system that is easy to use and builds upon PowerPoint, a commonly used application in workshops and group presentations. This program will increase knowledge of the use and availability and appropriateness of this new and powerful yet simple technology. TurningPoint allows for immediate audience response to questions directed to them in PowerPoint presentations. The participants learn how to use the tool to evaluate and make training sessions interactive and therefore, more interesting and engaging to their audience.

An in-service training was conducted in 2008 for 15 faculty members in the Central Florida district to introduce them to TurningPoint Technology. 100% of the faculty who participated in the TurningPoint training had an increase in knowledge gain and intend to use the technology within the next six months in at least one training session.

Faculty in several counties are currently using this technology in their workshops and receiving very enthusiastic response from the audience. They report that the data collection is seamless and easy to report in UF/IFAS accountability application. Because of the interest in the technology following training, in 2009, TurningPoint training and software/hardware will be provided to all Florida districts.

#### Effective Communication and Technology

After talking to many agents in 2008 about creating narrated PowerPoint presentations, then converting them to online Articulate learning modules, several agents in the South Central district have taken up the challenge. Several Articulate projects are underway and several learning modules have been posted.

Over the past several years, a similar increase in the use of other applications has occurred. Examples include YouSendIt.com, a free service to send large files, EventBrite.com an event registration program, Aweber.com, an e-mail list management service, and Elluminate.com, an online meeting/teaching program. Florida Extension sees improved technology and methods of communication an important means of reaching more people with effective research-based methods of program delivery.

#### Key Items of Evaluation

Nationally Developed Professional Development Programs with Florida involvement

4-H Faculty throughout the nation have uneven access to high quality relevant professional development opportunities.

1. Expanded Professional development Syllabi have been developed by 3 of the 5 national teams: Evaluating for Impact, Expanding Outreach to New and Underserved Audiences, and Volunteerism for Youth programs. Clientele reached: approximately 400, knowledge based

2. A full 10 module training curriculum has been developed by the Essential Elements Content team, and the Organizational Systems team is delivering 2 e-learning events on Scholarship for the Extension System in early 2009. Clientele reached: approximately 200, knowledge based

3. All 5 teams have developed the pre-post self assessment instruments that will guide individuals in selecting professional development opportunities for themselves. These will enhance the Florida Faculty Professional Development Program.

**Program #8**

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

**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%	1%	
102	Soil, Plant, Water, Nutrient Relationships	0%	0%	30%	
103	Management of Saline and Sodic Soils and Salinity	0%	0%	1%	
104	Protect Soil from Harmful Effects of Natural Elements	0%	0%	4%	
111	Conservation and Efficient Use of Water	0%	0%	24%	
112	Watershed Protection and Management	0%	0%	3%	
121	Management of Range Resources	0%	0%	2%	
123	Management and Sustainability of Forest Resources	0%	0%	3%	
124	Urban Forestry	0%	0%	1%	
131	Alternative Uses of Land	0%	0%	1%	
132	Weather and Climate	0%	0%	3%	
133	Pollution Prevention and Mitigation	0%	0%	10%	
135	Aquatic and Terrestrial Wildlife	0%	0%	12%	
136	Conservation of Biological Diversity	0%	0%	5%	
	<b>Total</b>	0%	0%	100%	

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

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	0.0	0.0	60.5	0.0
<b>Actual</b>	0.0	0.0	21.6	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	475187	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	475187	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	475187	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
- roducers/growers
- olicy regulators
- visitors to the state

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

**1. Standard output measures**

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	0	0	0	0
2008	0	0	0	0

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

**Patent Applications Submitted**

Year	Target
Plan:	1
2008 :	2

**Patents listed**

- Carbohydrate Based Cellulase Inhibitors as Feeding Stimulants in Termites
- Use of RNA Interference to Validate New Termiticide Target Sites

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

**Number of Peer Reviewed Publications**

	Extension	Research	Total
Plan	0	150	
2008	0	165	165

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

*Not reporting on this Output for this Annual Report*

Year	Target	Actual
2008	{No Data Entered}	{No Data Entered}

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

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

<b>O No.</b>	<b>OUTCOME NAME</b>
1	Develop BMPs Develop technology that improves the environment and natural resources Provide research based knowledge in areas related to natural resources and the environment

**Outcome #1**

**1. Outcome Measures**

Develop BMPs Develop technology that improves the environment and natural resources Provide research based knowledge in areas related to natural resources and the environment

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	0	0

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

**Issue (Who cares and Why)**

Florida continues on a six year study of nitrate and phosphorus leaching for Florida lawns. There are 5.5 million acres of home and roadside grasses in the state and the perception is that lawns fertilized with nitrates and Phosphorus directly affect water quality. This study will show if this is true.

**What has been done**

Early experiments were conducted for the first two or three years to account for variation in temperatures and rainfall. Comparisons are now being made between leaching from newly sodded grass and established grass, between different fertilizers, and winter vs. warm season fertilization.

**Results**

Preliminary data shows that where nitrogen is used in higher levels than recommending by UF leaching can occur and rainfall does influence the problems. Rainfall plays a major role in the amount of nutrients that get into surface and ground water. So the old adage that 'if it's going to rain one should fertilizer might not be the best practice. The program has two more years before a final report is released.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
135	Aquatic and Terrestrial Wildlife
102	Soil, Plant, Water, Nutrient Relationships
133	Pollution Prevention and Mitigation
132	Weather and Climate
111	Conservation and Efficient Use of Water
121	Management of Range Resources
101	Appraisal of Soil Resources

**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**

- Natural Disasters (drought, weather extremities, etc.)
  - Economy
  - Appropriation changes
  - Government regulations
  - Competing Public priorities
  - Competing Programmatic Challenges

## **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**

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 program for use of bacteriophages in tropical aquaculture disease management. This project will enhance the abilities to test and demonstrate impacts of new pond technologies. 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 *Xiphophorus 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.

### **Key Items of Evaluation**

This was a cooperative multicultural scholars program in natural resources and forestry between Florida A&M University and the University of Florida. African-Americans and Hispanics are underrepresented in the natural resource and forestry professions. This program will recruit, educate, and place up to five African-Americans and Hispanics in natural resource or forestry. The USFS-FAMU-UF 2+2 Program was designed to provide educational opportunities to minority students and increase the number of minorities in natural resources professions. Many students were productive during their time in the program and received quality educations at Florida A&M University (FAMU) and the University of Florida (UF). In all cases, the students received the opportunity to attend a major university and without the program, this opportunity would not have existed. Among those students who participated in the program, three recent students did graduate or are in the process of successfully completing their undergraduate degree this year. For example, Derrick Washington, graduated in 2004, worked successfully for the Ocala National Forest, and was promoted to be a recreation planner for the Land Between the Lakes in Kentucky. Other students currently hold leadership positions in forestry clubs and organizations at the University of Florida and are on track to graduate this year. Both students are currently employed by the USFS seasonally and will likely be attending graduate school at UF. US Forest Service (USFS), FAMU, and University of Florida representatives regularly discussed this project and attempted to identify ways to improve the recruitment and retention of minority students in natural resource majors and careers. Annual meetings that included student participation allowed all players to clearly define the barriers and opportunities of this type of program. Collaboration between UF, FAMU, and the USFS will continue. Based on the results and outcomes of this program, students will continue to be recruited and advised through a program that allows them to attend FAMU and UF and then work for the USFS. PRODUCTS: This project produced undergraduates in forestry and natural resources. OUTCOMES: Students received the immediate benefit of attending secondary education. A college education would have been impossible for many of these students, and this program allowed them to discover various opportunities available by achieving a university degree. DISSEMINATION ACTIVITIES: This project disseminated information about the USFS-FAMU-UF 2+2 Program, its graduates, and their accomplishments through the Proceedings of the 10th Anniversary of the USFS-FAMU-UF Program, through websites, and through varied recruiting initiatives. FUTURE INITIATIVES: The USFS-FAMU-UF Program will continue with funding primarily coming through the US Forest Service. Two students are completing their degrees at UF in 2008. Several other students are in their freshman and sophomore years at FAMU but are scheduled to attend UF next year. This project has successfully recruited minorities into forestry and natural resources professions and provided support necessary for their academic success.

**Program #9**

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

**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
201	Plant Genome, Genetics, and Genetic Mechanisms	0%	0%	3%	
202	Plant Genetic Resources	0%	0%	5%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	0%	0%	20%	
204	Plant Product Quality and Utility (Preharvest)	0%	0%	1%	
205	Plant Management Systems	0%	0%	9%	
206	Basic Plant Biology	0%	0%	13%	
211	Insects, Mites, and Other Arthropods Affecting Plants	0%	0%	13%	
212	Pathogens and Nematodes Affecting Plants	0%	0%	17%	
213	Weeds Affecting Plants	0%	0%	3%	
215	Biological Control of Pests Affecting Plants	0%	0%	10%	
216	Integrated Pest Management Systems	0%	0%	6%	
<b>Total</b>		0%	0%	100%	

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

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	0.0	0.0	156.2	0.0
<b>Actual</b>	0.0	0.0	52.0	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	1846988	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	1846988	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	1846988	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**

**Target for the number of persons (contacts) reached through direct and indirect contact methods**

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	0	0	0	0
2008	0	0	0	0

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

**Patent Applications Submitted**

Year	Target
Plan:	1
2008 :	37

**Patents listed**

Accomplishments and Results

Use of Bacteriophage Outer Membrane Breaching Proteins for the Control of Gram-Negative Bacteria  
 Nucleotide Sequences of 2S Albumin Gene and Its Promoter from Grape and Uses Thereof  
 Strategy for Nitrogen Fixation in Non-Legumes  
 Ascarosides Act as Nematode Sex Pheromones  
 Methyl Jasmonate Decreases Fruit Detachment Force of Grapes  
 Materials and Methods for Producing Resistance to Two Distinct Strains of Tomato Yellow Leaf Curl Virus  
 Control of Maize Kernel Sugar Content with Sorbitol Dehydrogenase-1  
 Heat Stable Mutants of Biosynthesis Enzymes  
 A Heat Stable Variant of Maize Endosperm ADP-Glucose Pyrophosphorylase  
 Rapid Phosphate Sorptions by Co-blending an Al-residual with Mg-Ca Amendments  
 Quality Improvement of Coffee by Enzyme Treatments  
 Branch Length Symmetry (BLS) Entropy and Derived Algorithms for Pattern Recognition  
 Prop-Strip and Prop-Tube for Transplanting and Rooting Plant Cuttings  
 A Cecropin-Melittin Hybrid Peptide With A Reduced N-Terminal Extension Confers High Levels Of Resistance To Xylella  
 Fastidiosa In Transgenic Grapevine  
 Centipedegrass plant named 'BA-417'  
 Florida-07 Peanut  
 AP-4 Peanut  
 York Peanut  
 McCloud Peanut  
 Florida Fancy Peanut  
 Trophy Oat  
 UF-Riata Bahiagrass  
 Southern Highbush Blueberry Plant Named 'Scintilla'  
 'Florida Elyana' strawberry plant  
 'Florida Radiance' strawberry plant  
 Caladium Plant Named 'Garden White'  
 Southern Highbush Blueberry Plant Named 'FLX-2'  
 Southern Highbush Blueberry Plant Named 'Farthing'  
 Southern Highbush Blueberry Plant Named 'FLX-1'  
 Caladium Plant Named 'Cranberry Star'  
 Caladium Plant Named 'Summer Rose'  
 Caladium Plant Named 'Firecracker Red'  
 Nectarine Tree Named 'UFRoyal'  
 Peach Tree Named 'Gulfcrimson'  
 Peach Tree Named 'Flordabest'  
 Aglaonema Plant Named 'UF25712KL'  
 Aglaonema Plant Named 'UFSB2'

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

**Number of Peer Reviewed Publications**

	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Plan</b>	0	200	
2008	0	612	612

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

*Not reporting on this Output for this Annual Report*

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	{No Data Entered}	{No Data Entered}



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

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

O No.	OUTCOME NAME
1	New solutions to critical need areas related to plants and their systems will be developed.

**Outcome #1**

**1. Outcome Measures**

New solutions to critical need areas related to plants and their systems will be developed.

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	0	0

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

**Issue (Who cares and Why)**

A better understanding of the damage caused by different species of plant-parasitic nematodes on turfgrasses and ornamental plants is required for diagnosis of plant problems. New methods of managing nematode problems on turfgrasses and ornamental plants are needed. This project seeks to better quantify the damage caused by plant-parasitic nematodes, and then reduce this damage, on turfgrasses and ornamental plants.

**What has been done**

Results from this project have been disseminated via educational seminars for clientele groups, field days, nematode assay reports and management recommendations, and trade journal articles. During the six years of this project I have spoken at 63 seminars to an audience of 4500 clientele. I have participated in 7 field days where I shared research results with approximately 2000 people. We have performed 13,000 nematode diagnoses and provided management recommendations incorporating the knowledge gained in this project.

**Results**

The results of our research on use of 1,3-dichloropropene to control nematodes on established turfgrasses has led to the registration of Curfew Soil Fumigant as a nematicide on golf and sports turf. This is now the primary nematicide used on golf and sports turf in the southeastern United States. The results of our research also has led to submission of several new softer nematicides and biological controls that are currently under review by EPA. Our research has led to the recognition of the damage potential of nematodes to seashore paspalum. This knowledge has been very important in developing management recommendations on this grass. Our research evaluating the susceptibility of perennial ornamentals has led to new recommendations for plant selection in nematode infested landscapes. Our research on the diagnosis and virulence of species of stubby-root and spiral nematodes on turfgrasses has led to the development of species-specific risk thresholds used by the nematode diagnostic service. This has helped reduce the number of times that nematicides are recommended. By studying the seasonal population dynamics of sting nematode on bermudagrass we are able to give much better recommendations on the timing of nematicide applications. This has allowed turfgrass managers to use nematicides less often, but with improved affect. Additionally, the population dynamics studies revealed the importance of winter overseeding on sting nematode reproduction. Therefore, we are recommending that when possible winter overseeding be avoided on golf courses with sting nematode infestation. This has greatly reduced the severity of sting nematode problems on these courses.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants
205	Plant Management Systems
206	Basic Plant Biology
215	Biological Control of Pests Affecting Plants
212	Pathogens and Nematodes Affecting Plants
211	Insects, Mites, and Other Arthropods Affecting Plants
204	Plant Product Quality and Utility (Preharvest)
202	Plant Genetic Resources
201	Plant Genome, Genetics, and Genetic Mechanisms
213	Weeds Affecting Plants

## 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

- Natural Disasters (drought, weather extremities, etc.)
  - Economy
  - Appropriation changes
  - Government regulations
  - Competing Public priorities
  - Competing Programmatic Challenges

## 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

Citrus remains the most important crop produced in Florida. Florida citrus producers face a number of challenges including increased foreign competition and adoption of new technology such as mechanical harvesting. The purpose of this project is to provide economic analysis of the issues confronting Florida including assessments of the industry's competitive position. Citrus remains the most important crop produced in Florida. Florida citrus producers face a number of challenges including increased foreign competition and adoption of new technology such as mechanical harvesting. The purpose of this project is to provide economic analysis of the issues confronting Florida including assessments of the industry's competitive position.

### Key Items of Evaluation

Citrus remains the most important crop produced in Florida. Florida citrus producers face a number of challenges including increased foreign competition, adoption of new technology including mechanical harvesting, and threats from invasive pests. This intent of this project is provide economic analysis of the issues confronting Florida including assessment of the competitive position of the industry. This research resulted in several electronic extension publications related to the cost and benefits of the citrus canker eradication programs. Other extension publications dealt with the impact of hurricanes on the citrus industry of Cuba and implications for Florida citrus growers. Numerous presentations have been made at both professional and grower meetings highlighting research outputs.

**Program #10**

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

**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%	10%	
302	Nutrient Utilization in Animals	0%	0%	8%	
303	Genetic Improvement of Animals	0%	0%	53%	
304	Animal Genome	0%	0%	3%	
307	Animal Management Systems	0%	0%	2%	
308	Improved Animal Products (Before Harvest)	0%	0%	3%	
311	Animal Diseases	0%	0%	4%	
312	External Parasites and Pests of Animals	0%	0%	15%	
314	Toxic Chemicals, Poisonous Plants, Naturally Occurring Toxins, and Other Hazards Affecting Animals	0%	0%	2%	
	<b>Total</b>	0%	0%	100%	

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

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	0.0	0.0	32.5	0.0
<b>Actual</b>	0.0	0.0	4.1	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	197032	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	197032	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	197032	0

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

**1. Brief description of the Activity**

•Conduct research experiments •Partnering

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

Accomplishments and Results

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**

**Target for the number of persons (contacts) reached through direct and indirect contact methods**

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	0	0	0	0
2008	0	0	0	0

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

**Patent Applications Submitted**

Year	Target
Plan:	1
2008 :	3

**Patents listed**

An In-Hive Trap and Attractant Composition for the Control of the Small Hive Beetle, *Aethina Tumida*  
 Engineering *Escherichia Coli* for Fermentative Hydrogen Production: Potential Role of NADH-Ferredoxin Oxidoreductase from the Hydrogenosome of Anaerobic Protozoa  
 A Process For Rendering Dialdehyde Polysaccharides Into Potent Biocides For Bacteria and Viruses

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

**Number of Peer Reviewed Publications**

	Extension	Research	Total
Plan	0	130	
2008	0	169	169

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

*Not reporting on this Output for this Annual Report*

Year	Target	Actual
2008	{No Data Entered}	{No Data Entered}

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

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

O No.	OUTCOME NAME
1	Develop BMPs related to animals and their systems Develop technology related to animals and their systems Add knowledge that increases the value of animals and their systems Increase knowledge in the area of animal diseases

**Outcome #1**

**1. Outcome Measures**

Develop BMPs related to animals and their systems Develop technology related to animals and their systems Add knowledge that increases the value of animals and their systems Increase knowledge in the area of animal diseases

**2. Associated Institution Types**

•1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	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**

. Evaluate the feeding value of various non-traditional and by-product feedstuffs for beef cattle. 2. Determine how to best utilize by-products and non-traditional feedstuffs as supplement feeds for beef cattle consuming forage based diets.

**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
301	Reproductive Performance of Animals
307	Animal Management Systems
311	Animal Diseases

## **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**

- Natural Disasters (drought, weather extremities, etc.)
  - Economy
  - Appropriation changes
  - Government regulations
  - Competing Public priorities
  - Competing Programatic Challenges

## **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**



Feed costs represent the largest variable cost in beef cattle operations. For cattle producers to remain as viable economical enterprises, cost will need to be reduced. This project investigates feed efficiency in cattle adapted to tropical and subtropical environments. Selection for feed efficiency in beef cattle would lead to less feed consumed by the cow herd, thereby, decreasing production costs for producers.

Result of this research have been disseminated through presentations of at scientific meetings, producer meetings and through extension professionals. Data from this project was shared with producers and industry representatives at the University of Florida Beef Cattle Short Course and the Florida Cattlemen's Association annual meeting. Results from this research was presented and discussed at the BIF and ASAS meetings this past year. Several other presentations were made to Cattlemen and other professionals throughout the United States. PARTICIPANTS: Individuals from the North Florida Research and Education Center include: Gary Hansen, Bob Meyer, Megan Brew, Charles Nowell, Don Jones and Harvey Standland. From the University of Florida in Gainesville include: Mauricio Elzo and Duane Johnson. From the USDA/ARS include: David Riley, Chad Chase and Sam Coleman. From the RCREC (Ona) John Arthington, David Arujo, and Reinaldo Cooke. Partner organizations included: University of Florida, USDA STARS, New Mexico State University, and Texas A & M University. Training was provided to Megan Brew in the form of a master's degree. The Florida Cattlemen's Association was a partner organization as they provided cattle and support at the state and federal legislative level. TARGET AUDIENCES: The target audience for this grant is cattlemen, extension livestock agents, as well as industry representatives. Training of the audience was provided in the form of presentations at producers meetings, field days and in-service trainings. PROJECT MODIFICATIONS: Nothing significant to report during this reporting period. PARTICIPANTS: PARTICIPANTS: Individuals from the North Florida Research and Education Center include: Gary Hansen, Bob Meyer, Megan Brew, Charles Nowell, Don Jones and Harvey Standland. From the University of Florida in Gainesville include: Mauricio Elzo and Duane Johnson. From the USDA/ARS include: David Riley, Chad Chase and Sam Coleman. From the RCREC (Ona) John Arthington, David Arujo, and Reinaldo Cooke. Partner organizations included: University of Florida, USDA STARS, New Mexico State University, and Texas A & M University. Training was provided to Megan Brew in the form of a master's degree. The Florida Cattlemen's Association was a partner organization as they provided cattle and support at the state and federal legislative level. Congressman Alan Boyd worked to provide legislative support for this project TARGET AUDIENCES: The target audience for this grant is cattlemen, extension livestock agents, as well as industry representatives. Training of the audience was provided in the form of presentations at producers meetings, field days and in-service trainings.

This project resulted in a change of knowledge in how individual animals within and between breeds of cattle differ as to feed utilization. Using this information, scientists will be able to train cattle producers to use selection tools that will result in cattle that are 20% more efficient in using feed resources. This will significantly impact cattle producers as a 20% reduce in feed cost without a reduction in production will allow for more sustainable beef cattle herds.

#### **Key Items of Evaluation**

Animal production is hampered by lack of approved drugs for minor species. NRSP-7 in collaboration with FDA and pharmaceutical manufacturers develops efficacy and safety data to facilitate drug approvals for minor species/minor uses. The primary aim of the NRSP-7 Program is the promotion of the availability of drugs that help relieve/prevent disease and/or pain and suffering in minor species or minor uses in major species. These two groups of animals present little incentive to pharmaceutical companies to conduct studies to expand their labels to include such situations. The immediate aim of this project is to secure and maintain key IT functionality during a funding lapse. The major minor species drug project undertaken by the Southern Region that has both complete and incomplete sections is INADA 10-062 (fenbendazole as an anthelmintic in gamebirds). The efficacy data packet has been accepted by FDA's Center for Veterinary Medicine (CVM). All human and target animal safety experimental work has been completed and the data are being prepared for submission to CVM. A previously completed project - Public Master File 5440, clorsulon as a flukicide in goats, still remains unused. Active Projects: Target animal safety (TAS) work for ivermectin for ear mites in rabbits (ADR 107) has been completed and a report to FDA/CVM is in preparation. The human safety study in vivo section has been completed and the samples frozen. The analytic section validation has been completed and analysis of the incurred samples has commenced. The TAS study for crude carp pituitary extract (ADR 271) which was completed by a sub-contractor was completed but the report submitted to FDA/CVM had major problems which have not as yet been resolved. As mentioned above, reports on the remaining sections of the fenbendazole project in gamebirds are being prepared. Preliminary work on projects for fenbendazole in deer, and lasalocid in deer and goats has been completed and in vitro work has commenced to validate the lasalocid assay. It is hoped that FDA will agree to the claims being for all cervids and all goats. Because of funding difficulties, development for in vivo work has been suspended. Web Site Activities: The Southern Region hosts both the public NRSP-7 website and the internal (Ringer) administrative site. A major attraction at the web site is the publically accessible interactive database of drugs approved for use in minor species (MUMSRx). This database was developed with the cooperation of the USDA-CSREES supported Food Animal Residue Avoidance Databank (FARAD). The FARAD cooperation extended to NRSP-7 sharing data from its kinetic studies with FARAD to give veterinarians more valid advice on extra-label drug use as permitted by AMDUCA. The Regional Update System Tracking Information (RUSTi) database that allows technical and administrative members of NRSP-7 to follow progress of animal drug requests (ADR) in real time continues under development. It was the importance of the IT work performed by the Southern Region for the NRSP-7 program at large that prompted the University of Florida's Agricultural Experimental Station to provide supplementary fund in the past year to ensure continuity in programming support. The Congress' decision to eliminate all earmarks removed NRSP-7's funding for both the 2007 and 2008 budget years. Fortunately the Agricultural Experimental Station Directors have made bridging funds available. This has brought to a head the future of NRSP-7 because over 10 years of level funding has prevented the program maintaining its former productivity when that combines with FDA upgrading their requirements causing increasing the cost of the projects the program undertakes. The project continues to provide data and project management for potential drug approval for minor uses and minor species.

**Program #11**

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

**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	0%	0%	22%	
502	New and Improved Food Products	0%	0%	27%	
503	Quality Maintenance in Storing and Marketing Food Products	0%	0%	20%	
512	Quality Maintenance in Storing and Marketing Non-Food Products	0%	0%	31%	
	<b>Total</b>	0%	0%	100%	

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

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	0.0	0.0	11.5	0.0
<b>Actual</b>	0.0	0.0	5.8	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	265629	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	265629	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	265629	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**

**Target for the number of persons (contacts) reached through direct and indirect contact methods**

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	0	0	0	0
2008	0	0	0	0

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

**Patent Applications Submitted**

Year	Target
Plan:	1
2008 :	6

**Patents listed**

- Method and Apparatus for Measuring Oxygen Transmission Rate (OTR) of Perforated Thin Films
- Liquid Nutrient Composition for Improving Performance
- Xylan-Utilization Regulon for Efficient Bioprocessing of Hemicellulose
- Device to Passively Maintain Constant Relative Depth in Liquids
- Improved Klebsiella Oxytoca for Ethanol Production
- The Use of Hypotaurine and Related Compounds to Inhibit Enzymatic Browning in Food

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

**Number of Peer Reviewed Publications**

	Extension	Research	Total
Plan	0	20	
2008	0	27	27

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

*Not reporting on this Output for this Annual Report*

Year	Target	Actual
2008	{No Data Entered}	{No Data Entered}

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

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

O No.	OUTCOME NAME
1	Develop improved food processing technologies Develop new food products Develop better methods of food harvesting, processing, storage and marketing of food products Develop better methods of food safety including in the area of bioterrorism

**Outcome #1**

**1. Outcome Measures**

Develop improved food processing technologies Develop new food products  
 Develop better methods of food harvesting, processing, storage and  
 marketing of food products Develop better methods of food safety including in  
 the area of bioterrorism

**2. Associated Institution Types**

•1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	0	0

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

**Issue (Who cares and Why)**

Antimicrobial properties of nisin increased with increasing concentrations. The optimum usage level of nisin was 0.5%. Rosemary extract and EDTA exhibited limited anti-Listerial effects when applied alone or in combination with nisin.

**What has been done**

This research plan will involve multi-faceted approaches and methodologies with two distinct parts: 1) effects of new technologies on food safety and quality with emphasis on phytonutrients such as carotenoid and vitamin E, and 2) evaluation of consumer knowledge and preference of non-traditional food products. In the part one, several methodologies such as typical wet chemistry procedures, microbiological testing, biological assay, sensory evaluation, and physical methods will be employed, while, in the part two, various consumer surveys will be used in order to address current consumer knowledge in current issues on food safety and quality. For the first part, food products and commodities selected for the study will be those with significant health and economical importance to Florida. These products may include fruits, vegetables, citrus and non-traditional food products that are becoming an integral part of Floridian consumers food intakes based on demographic changes. Scopes of research plan may include characterization of new food products or new utilization of traditional products. When applicable, new technologies such as high hydrostatic pressure processing or irradiation will be employed, and their effects on food products will be compared the with traditional thermal processing techniques. In addition, consumer research will be needed to address food safety and quality issues facing Floridians.

**Results**

During the project period the investigator was able to obtain meaningful research data for many research publications and integrate them into many educational programs addressing the food safety and quality knowledge gaps among both consumers and professionals. This research project produced six refereed publications, seven published research abstracts, and presentations at the international, national, regional and state levels. The results have been incorporated into two major extension food safety educational programs for produce handlers and for small farm operator and farmers' market vendors. Furthermore, the project was able to host seven University of Florida undergraduate research interns, four international interns, and two high school intern students. Last, but not least, the research result on ethnic food safety from this project was competitive enough to obtain significant extramural funding from a federal grant program.

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
501	New and Improved Food Processing Technologies
512	Quality Maintenance in Storing and Marketing Non-Food Products
503	Quality Maintenance in Storing and Marketing Food Products
502	New and Improved Food Products

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

### External factors which affected outcomes

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

### Brief Explanation

- Natural Disasters (drought, weather extremities, etc.)
  - Economy
  - Appropriation changes
  - Government regulations
  - Competing Public priorities
  - Competing Programmatic Challenges

## 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

#### The Poultry Food System: A Farm to Table Model

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

The project involved the evaluation of antimicrobials for anti-Listeria properties for application in ready-to-eat poultry products. Natural food grade antimicrobials for use as anti-Listeria agents in ready to eat poultry products were evaluated. The antimicrobials included nisin, rosemary extract and EDTA. Dissemination of the results of this work has included professional conferences, and preparation of refereed journal articles. PARTICIPANTS: Individuals who worked on the project included Alba Ruiz and Noufoh Djeri, Master of Science graduate students. Partner collaborators included Arthur Hinton, Ph.D., USDA ARS, Athens, GA, and Gary Rodrick, Ph.D., Food Science and Human Nutrition Department, University of Florida. The collaborators provided microbiological expertise. This project was the Master of Science research project of Alba Ruiz. She gained extensive hands-on experience in microbiological techniques for the control of *Listeria monocytogenes* in poultry products.

Antimicrobial properties of nisin increased with increasing concentrations. The optimum usage level of nisin was 0.5%. Rosemary extract and EDTA exhibited limited anti-Listerial effects when applied alone or in combination with nisin.

### Key Items of Evaluation

High quality seed is key to crop production; environmental factors such as high temperature and poor germination can reduce seed quality. All areas of production including stand establishment, sustainability, and seed storage will be the focus of this study to improve and provide answers to problems faced by seed producers and growers. Achene (seed) anatomy of five native *Coreopsis* species, *C. basalis*, *C. floridana*, *C. lanceolata* (four sources), *C. leavenworthii*, and *C. pubescens* were studied in an attempt to identify regulators of seed dormancy. Seeds were examined using light microscopy, scanning electron microscopy (SEM) and fluorescence microscopy. Seeds of all species had a woody pericarp, testa and a single cell-layer of endosperm surrounding the dicotyledonous embryo. In germination studies, the endosperm and pericarp were implicated in coat-enhanced seed dormancy. The pericarp and endosperm of *C. floridana* and *C. lanceolata* seeds play a significant role in seed dormancy regulation and impose thermo-inhibition at supra-optimal temperatures. Seeds of the wildflower *Coreopsis lanceolata* have been reported to exhibit dormancy. Studies were conducted to identify factors imposing dormancy. The effects of potassium nitrate, seed tissues enveloping the embryo, gibberellic acid (GA4 plus 7), temperature, afterripening period (dry storage at 10 deg C) and cold stratification were investigated in the germination of freshly harvested seeds. Carrot (*Daucus carota*) seed germination and consequently stand establishment may be reduced under temperatures above 35 deg C. Various priming treatments were tested and respiratory activity measured. Stand establishment may be improved, especially during high temperatures, with use of well developed carrot seed and priming. By determining not only the achene anatomy of native *Coreopsis* species, but also by identifying factors imposing dormancy and how to overcome them, native plant species have a better ability to become established wherever desired. Current plans involve the use of native *Coreopsis* species to replant or fill in locations of roadway easements so that mowing is reduced, soil moisture content is maintained and erosion is minimized. Improvements with carrot seed production and priming may allow production of the species in locations not highly desired by the carrot industry.



**Program #12**

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

**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	0%	0%	22%	
602	Business Management, Finance, and Taxation	0%	0%	9%	
603	Market Economics	0%	0%	10%	
604	Marketing and Distribution Practices	0%	0%	10%	
605	Natural Resource and Environmental Economics	0%	0%	13%	
606	International Trade and Development	0%	0%	15%	
607	Consumer Economics	0%	0%	2%	
608	Community Resource Planning and Development	0%	0%	9%	
609	Economic Theory and Methods	0%	0%	9%	
610	Domestic Policy Analysis	0%	0%	1%	
	<b>Total</b>	0%	0%	100%	

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

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	0.0	0.0	12.0	0.0
<b>Actual</b>	0.0	0.0	6.6	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	216118	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	216118	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	216118	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**

**Target for the number of persons (contacts) reached through direct and indirect contact methods**

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	0	0	0	0
2008	0	0	0	0

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

**Patent Applications Submitted**

Year	Target
Plan:	1
2008 :	0

**Patents listed**

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

**Number of Peer Reviewed Publications**

	Extension	Research	Total
Plan	0	50	
2008	0	24	24

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

*Not reporting on this Output for this Annual Report*

Year	Target	Actual
2008	{No Data Entered}	{No Data Entered}

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

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

<b>O No.</b>	<b>OUTCOME NAME</b>
1	Develop BMPs related to marketing and distribution practices Add to the growing field of theory related to agricultural economics and marketing Develop technology to improve economic analysis Increase theory and practice related to international economics and marketing

**Outcome #1**

**1. Outcome Measures**

Develop BMPs related to marketing and distribution practices Add to the growing field of theory related to agricultural economics and marketing  
 Develop technology to improve economic analysis Increase theory and practice related to international economics and marketing

**2. Associated Institution Types**

•1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	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.

**What has been done**

The goal of this comprehensive, multi-location demonstration project was to compare the production and financial inputs and outputs within commercial beef cowherds. Each herd will separate their cows into two separate groups based on age, days postpartum, and body condition score. Group 1 cows will be mated by natural service and Group 2 cows will be mated after estrous synchronization and TAI at the same time as bulls are presented to Group 1 cows. Five cowherds, ranging from 100 to 250 cows have been selected. Herds will be monitored for three years. Group 1 cows will be mated annually to natural service, whereas Group 2 cows will continue to receive estrous synchronization and TAI. All management will continue within each herd as per the normal operating procedures for those herds. Annual calf performance (birth, weaning weights, etc.), cow performance (body weight, body condition score, culling rates, etc.), reproductive performance (annual days postpartum, pregnancy rates, calving rates etc.), plus subsequent female retention, market prices, and feedlot performance will be monitored. The economic analysis will be completed in three areas: 1) partial budgeting framework comparing natural service versus AI, 2) whole farm analysis of farm financial performance, and 3) long range financial performance of incorporating AI on commercial cow-calf operations. Ultimate goals are to generate an interactive decision-aid spreadsheet for producers, veterinarians, and allied industry to assess the potential impact on costs and revenues of adopting AI breeding on their herd. Data from the participating cow-calf operations will provide default information in the decision-aid spreadsheet. The spreadsheet will allow producers to assess the expected cost per cow/exposed, cost per pregnancy, cost per calf weaned and cost per weight of calf weaned. Spreadsheet users will be able to assess the impact changes in revenue, costs, productivity, and facility investments have on the expected returns. In addition, data from this demonstration project will be utilized for technology transfer during Extension programs. ANALYSIS AND ASSESSMENT OF IMPACT. This is a novel initiative that utilizes actual producer generated information to validate the current research based knowledge with regards to reproductive efficiency. Development of the proposed Extension educational tools affords us the opportunity to assess the economic and production impact on producers. The key evaluation of the success of the program is an increase in utilization of estrous synchronization and AI, which is a measurable outcome assessed during Extension program evaluations.

**Results**

Utilizing a partial budget analysis, this study examined the financial implications from the intervention of ES/TAI on commercial cow/calf production. This study explored a sub-sample of the total system of cow/calf production and examined the impact of ES/TAI on increased returns, decreased costs, decreased returns, and increased costs. Weaning weight was a major driver of profit. Unrealized genetic potential, possibly due to the direct or indirect effects of drought conditions, negatively impacted WW and the overall economic performance of ES/TAI. Management's ability to influence calf WW directly influences the economic outcome of ES/TAI when calves are marketed at

#### 4. Associated Knowledge Areas

KA Code	Knowledge Area
604	Marketing and Distribution Practices
601	Economics of Agricultural Production and Farm Management
606	International Trade and Development
610	Domestic Policy Analysis
607	Consumer Economics
603	Market Economics
605	Natural Resource and Environmental Economics
609	Economic Theory and Methods

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

##### External factors which affected outcomes

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

##### Brief Explanation

- Natural Disasters (drought, weather extremities, etc.)
  - Economy
  - Appropriation changes
  - Government regulations
  - Competing Public priorities
  - Competing Programatic Challenges

#### 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 economic impacts of various economic activities are increasingly being considered in the public policy arena. In Florida, rapid development has occurred in many areas without due process to planning, and natural landscape amenities that are the basis of the large tourism sector may be compromised. The purpose of this project is to evaluate economic, environmental and fiscal impacts of agricultural, natural resource and related amenity-based industries in Florida, in order to support development for economically efficient outcomes.

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. Much of my work in this area relies upon the use of input-output models constructed with the Implan Pro software and associated databases, which represent the structure of regional economies, and provide economic multipliers to estimate the secondary impacts of industry purchases and employee household consumer spending. Through the UF/FRED program in economic impact analysis, we have conducted research projects to evaluate a wide range of Florida's agricultural and natural resource-based activities, with in-depth sponsored projects conducted for major industries in Florida such as environmental horticulture, forestry, fisheries, citrus, healthcare, tourism, golf and mixed residential-commercial planned unit development. In addition, we have evaluated a variety of development projects, institutions and events in individual counties or regions of Florida and other states. Agriculture, food manufacturing and natural resources are major sectors of the Florida economy, with total output (revenue) impacts approaching \$100 billion annually. Many people, especially urban dwellers and recent immigrants, are not aware of its historic and ongoing importance, which sometimes leads to conflicts over resource use and enactment of public policies that may be harmful to the industry. The objective of this extension program is to provide information on the role and economic contribution of these basic industries and related activities and events, in order to achieve greater awareness and understanding by government regulators, policy-makers, and the public at large. Extension publications in this program area are made publicly available on a program website (<http://economicimpact.ifas.ufl.edu>). Many smaller studies and consultations have also been provided in support of local economic development efforts. I conducted training workshops on economic impact analysis for UF/IFAS county extension faculty. I have also been involved with the UF/IFAS Agriculture Awareness Initiative and county extension faculty to identify educational needs and develop region-specific information products to enhance public knowledge about agriculture. Since 2005, a total of \$160,000 in funding has been received for this program.

This work is extensively used by University of Florida administration, by industry associations, and allied professionals, to evaluate industry trends and market opportunities, to assess the impact of regulatory actions, and inform policy debates around proposed legislation and funding decisions. Economic impact studies conducted at the request of some of the major industries in Florida, such as citrus, forestry, environmental horticulture, golf and tourism, have demonstrated the economic contributions of these industries in terms of employment (jobs), value added (income) and output (sales revenues). Feedback by industry sponsors indicates that this information has been valuable for gaining public recognition and in obtaining fair consideration on issues such as labor, land use, water quality, pesticide regulation, and international trade.

#### **Key Items of Evaluation**

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.

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.

#### Integrate UF/FAMU Consumer Friendly Goat Meat Products

Florida A&M University and the university of Florida have been collaborating in the area of goat meat products. Goats have long been a major research species for FAMU, which specialises in goat production, nutrition, and herd health. Uf has become involved in developing vaccum-packaged, value added goat meat products with consumer appeal. The products have been tested on a panel of volunteer taste testers at the University of Florida through the department of Food Science and Human Nutrition. As the products become more marketable this will lead to the need for an increase in goat production in the state and this is increasing the economic value for small farm that specialize in goat production.

**Program #13**

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

**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	0%	0%	43%	
703	Nutrition Education and Behavior	0%	0%	11%	
704	Nutrition and Hunger in the Population	0%	0%	2%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	0%	0%	17%	
721	Insects and Other Pests Affecting Humans	0%	0%	10%	
722	Zoonotic Diseases and Parasites Affecting Humans	0%	0%	3%	
723	Hazards to Human Health and Safety	0%	0%	14%	
<b>Total</b>		0%	0%	100%	

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

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	0.0	0.0	21.7	0.0
<b>Actual</b>	0.0	0.0	5.3	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	58782	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	58782	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	58782	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**

**Target for the number of persons (contacts) reached through direct and indirect contact methods**

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	0	0	0	0
2008	0	0	0	0

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

**Patent Applications Submitted**

Year	Target
Plan:	1
2008 :	0

**Patents listed**

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

**Number of Peer Reviewed Publications**

	Extension	Research	Total
Plan	0	15	
2008	0	52	52

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

*Not reporting on this Output for this Annual Report*

Year	Target	Actual
2008	{No Data Entered}	{No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O No.	OUTCOME NAME
1	Develop requirements and data related to function of nutrients and other food components Develop BMPs related to nutritional behavior Develop BMPs for protecting foods from contamination both natural and bioterrorist Develop data to decrease the negative affects insects and other pests can have on humans Develop research and BMPs that can protect humans from hazards and increase safety

**Outcome #1**

**1. Outcome Measures**

Develop requirements and data related to function of nutrients and other food components  
Develop BMPs related to nutritional behavior  
Develop BMPs for protecting foods from contamination both natural and bioterrorist  
Develop data to decrease the negative affects insects and other pests can have on humans  
Develop research and BMPs that can protect humans from hazards and increase safety

**2. Associated Institution Types**

•1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	0	0

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

**Issue (Who cares and Why)**

The tropics are an excellent source of botanicals with long histories of use with pharmacological and medicinal uses. Many of these plants have economic value, yet are marketed on a limited basis. Dietary guidelines often overlook botanicals as a significant source of health-promoting compounds. Advanced chemical and biomedical tests are needed to elucidate the benefits of compounds contain in botanicals. This project will serve to identify and quantify antioxidant and bioactive components in four tropical or sub-tropical botanicals, with plants chosen to reflect commercial potential or have been traditionally consumed in hot beverages, for value added research applications. Chemical and antioxidant characterization will be followed by an evaluation of bioactive properties to determine their pharmacological effects for promoting optimal health. The goal is to inform consumers, growers, and processors of value-added products and processes from these botanical sources that will advance human health and add to the economic impact of these crops.

**What has been done**

Tea is second only to water as the most consumed beverage in the world due to its characteristic flavors and reported health-promoting properties due to its antioxidant polyphenolic composition. Ready to drink teas are a growing market segment due its convenience, however its stability during storage may be compromised from oxidative reactions. The objective of this study was to evaluate the stability of polyphenolics in various teas and to assess the effects of L-ascorbic acid for antioxidant retention during storage. Green tea (*Camelia sinensis*), yerba mate (*Ilex paraguariensis*) and mamaki (*Pipturus albidus*) tea were prepared by steeping 3g of tea in 300 mL of water at 90C for 3 min. The decoction was divided into six equal parts and fortified with L-ascorbic acid at 0, 5, 10, 15, 20, 25mg/50mL. Chemical analyses were initially conducted and followed weekly for 8 weeks during storage at 4.5C. Changes in polyphenolics were measured by HPLC and by the Folin-Ciocalteu assay for total phenolics and antioxidant capacity measured using the ORAC assay. During the 8 week storage, polyphenolics gradually decreased in all tea samples. The oxidative conditions of storage resulted in notable decreases such as 29% of (-)-epigallocatechin gallate in green tea, 81% of chlorogenic acid and 8% of caffeic acid in yerba mate, and 84% of chlorogenic acid and 81% of flavonoids in mamaki. L-ascorbic acid fortified teas contained 19% and 20% more chlorogenic acid in yerba mate and mamaki teas throughout storage as a result of protective effect of L-ascorbic acid. Antioxidant capacity and total soluble phenolics were higher in all ascorbic acid added tea extract throughout tea storage even though they were steadily declined. From these results, adding ascorbic acid would be beneficial to tea product in respect of protecting reduction of some polyphenolics and antioxidant capacity during storage. When preparing ready to drink teas (RTD), polyphenolics can interact with caffeine, protein and metals forming undesirable precipitate called tea cream (TC). However, exact mechanisms for its formation are still unclear. TC can depreciate sensory properties and give a muddy appearance by increasing turbidity. The main factors causing this phenomenon and strategies to minimize TC formation during RTD manufacturing were investigated using green tea (GT) (*Camellia sinensis*), yaupon holly (YH) (*Ilex vomitoria*) and mamaki (MA) (*Pipturus albidus*) teas. Events: Abstracts, oral and poster presentations were reported at 5 meetings. This is the doctoral dissertation of Youngmok Kim Factors Influencing Antioxidant Phytochemical Stability of Botanical Teas Dissemination Dissemination of this knowledge by oral (IFT symposium and informal conversations) and written (publications) communication, helps growers and distributors of these fruits market their products based on health and nutritional quality in addition to the other organoleptic characteristics of the fruits. PARTICIPANTS: Partner organizations Univ of Puerto Rico, Mayaguez, Puerto Rico ITESM-Campus Monterrey, Monterrey, Mexico Tropical Fruit Growers of South Florida, Inc. Citrus and Subtropical Products Research Laboratory, Winter Haven Collaborators Jonathan Crane, UF/IFAS, Homestead Florida Jeff Brecht and Steve Sargent , Hort Sci, UF/IFAS, Gainesville TARGET AUDIENCES: New knowledge on the composition and nutritional benefits of these foods was derived. The information has potential to be added to the USDA's new database on phytochemical and antioxidant composition of foods. These activities and products com out of a collaboration with the Tropical Fruit Association and the USDA Center in Homestead

## Results

A change in knowledge about the behavior under processing, packaging and storage conditions of tea will benefit the tea industry. Consumers will be interested in these new varieties of teas with higher health values. A change in knowledge from not knowing the phytochemical content to knowing the phytochemical content and understanding the relationship to antioxidant capacity persuades consumers of the health benefits of consuming these fruits. Consumer may change their actions to purchase and eat more of these nutritious fruits. Results like these help growers market their products, educate consumers to consume them thereby increasing their profits.

## 4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
702	Requirements and Function of Nutrients and Other Food Components
722	Zoonotic Diseases and Parasites Affecting Humans
723	Hazards to Human Health and Safety
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
721	Insects and Other Pests Affecting Humans

## 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**

- Natural Disasters (drought, weather extremities, etc.)
  - Economy
  - Appropriation changes
  - Government regulations
  - Competing Public priorities
  - Competing Programmatic Challenges

### **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**

##### Nutrition, Immune Function, and Clinical Outcome

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.

Over the past year we have investigated the use of prebiotics on immune function or health. Mice were fed a standard defined diet or the standard diet with 4% or 8% fructo-oligosaccharide for four weeks. Changes in lymphocyte sub-populations in the colon, Peyer's patch, and mesenteric lymph nodes were evaluated using flow cytometry. Mitogen-stimulated mesenteric lymph node lymphocyte cytokine production was also assessed. The ability of a prebiotic food ingredient to maintain health in university undergraduates (n=176) during an academic stress was also examined. Our studies demonstrate that nutrients can be used to modify immunity.

#### **Key Items of Evaluation**

#### Optimizing Health with Folate and Related Nutrients Throughout the Lifespan

Folate is a vitamin with important health implications. Impaired folate status has been associated with increased risk for birth defects, vascular disease, cancer, and cognitive dysfunction. Studying the relationship between folate status, genetic make-up and chronic disease risk may provide clues for improving human health that can be translated into nutrition education programs for the public.

Folate intake and status were determined for non-supplement consuming healthy young men (n=140) and women (n=162) (ages 18-49 y). Folate/folic acid intake was estimated using a food frequency instrument (DHQ), and the relative contribution of different food categories to folate/folic acid intake was determined. The relationship between folate status and the MTHFR 677C>T genotype also was examined. This project formed the basis of a graduate student's thesis research. An abstract has been submitted for presentation at a national meeting, and a manuscript is in the initial stages of development. Continuing our work from last year in which we investigated vitamin B12 intake and status of healthy adults, we finalized a manuscript that had been submitted for publication. We also prepared a new manuscript in which we estimated differences in dietary vitamin B12 intake among individuals with varying dietary practices based on frequency of beef intake and estimated the daily contribution of total dietary vitamin B12 intake of different types of foods relative to beef. As part of our ongoing efforts to educate the public about the health benefits of folic acid, we conducted a literature review focusing on occupational health and worksite health promotion programs to learn more about the unique aspects of conducting onsite employee health and wellness programs. Site visits of 4 businesses were conducted to learn more about how health messages are delivered in the workplace and to evaluate the potential opportunities and barriers related to worksite health promotion programs. Occupational/employee wellness staff were interviewed to obtain their perspectives and ideas for viable approaches to worksite health promotion and to assess the perceived usefulness of our ideas. Examples of health education materials currently used in worksite health promotion programs also were obtained and reviewed. Subsequently, a worksite health promotion toolkit focusing on the health benefits of folic acid, particularly with regard to folic acid's role in neural tube defect (NTD) risk reduction, was developed and pilot-tested at a Florida-based business. Pre- and post-intervention surveys from employees, as well as feedback from the employee health/wellness staff were used to modify the toolkit. Four businesses are being recruited as test sites for 2008, after which the toolkit will be finalized and 50 copies of the kit will be distributed to businesses who participated in the pilot tests, and the State Association of Occupational Health Nurses, the March of Dimes, and other Florida Folic Acid Coalition (FFAC) partners. The FFAC web site was updated (<http://www.folicacidnow.net/indexflash.html>), and activities of the coalition, which include collaborations with public and private agencies and businesses from and around Florida, including the March of Dimes Florida Chapters, USF Birth Defects Center and the Florida Department of Health, were continued. Two newsletters were published online and distributed in hard copy at 3 different conferences for health professionals and to other FFAC partners. The online newsletters are available to anyone who accesses the web site.

Understanding the relationships among folate and vitamin B12 status/intake, common genetic variations, and altered metabolic function will help to better define optimal nutrient requirements for specific populations and identify those populations at greatest risk and for whom targeted intervention strategies would be most important. For example, our examination of the folate intake and status of non-supplement consuming young men and women revealed that dietary folic acid from enriched cereal-grain products and fortified ready-to-eat cereals positively affected total folate intake and status of males and females; however, folic acid intake of females was less than the level recommended for NTD risk reduction. An effective intervention strategy for increasing folic acid intake of non-supplement consuming females of reproductive potential may be to emphasize daily consumption of fortified ready-to-eat cereals as part of promotional campaigns and educational programs. Our research program has the potential to reduce health care costs, morbidity, and premature death when applied to the public health arena. The long term economic impact of this research could be significant in a state like Florida where vascular disease, cancer, stroke, and Alzheimer's are leading causes of death. The results of our worksite health promotion program pilot test revealed a change in knowledge and actions with regard to folic acid. Specifically, there were significant increases in folic acid knowledge and behavior (i.e., taking a multivitamin) following the program intervention. Our Florida Folic Acid Coalition educational booth was displayed at the Governor's Conference on Women's Health (May 15-16, 2007) where 310 health care providers, administrators, policy makers and women's health advocates were in attendance. We also had an exhibit at the Florida State Association of Occupational Health Nurses (FSAOHN) conference (Oct 26-28, 2006) where 88 health professionals were in attendance. These events increased awareness of the benefits of folic acid to health, particularly with regard to NTD risk reduction. Attendance at these meetings was instrumental in developing key contacts, and in the case of the FSAOHN conference, directly resulted in our successful pilot testing partnership with a Florida-based business. The number of visits to the Florida Folic Acid Coalition web site typically runs between 3,000 to 5,000 per month. The information provided on this site has the potential to contribute to a change in knowledge, and possibly behaviors, among viewers. The number of visits to the Florida Folic Acid Coalition web site typically runs between 3,000 to 5,000 per month. Likewise, the newsletters, which are available online but also were distributed to health professionals and other key stakeholders, have the potential to change knowledge, and possibly behaviors among readers. The information provided on this site has the potential to contribute to a change in knowledge, and possibly behaviors, among viewers.

**Program #14**

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

**1. Name of the Planned Program**

Families, Youth, and Communities--research

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

**1. Program Knowledge Areas and Percentage**

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
801	Individual and Family Resource Management	0%	0%	9%	
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	0%	0%	36%	
806	Youth Development	0%	0%	55%	
	<b>Total</b>	0%	0%	100%	

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

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>	0.0	0.0	0.4	0.0
<b>Actual</b>	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	9108	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	9108	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	9108	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**

**Target for the number of persons (contacts) reached through direct and indirect contact methods**

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	0	0	0	0
2008	0	0	0	0

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

**Patent Applications Submitted**

Year	Target
Plan:	0
2008 :	0

**Patents listed**

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

**Number of Peer Reviewed Publications**

	Extension	Research	Total
Plan	0	20	
2008	0	16	16

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

*Not reporting on this Output for this Annual Report*

Year	Target	Actual
2008	{No Data Entered}	{No Data Entered}



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

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

O No.	OUTCOME NAME
1	Find solutions to problems related to human development and family well-being

**Outcome #1**

**1. Outcome Measures**

Find solutions to problems related to human development and family well-being

**2. Associated Institution Types**

- 1862 Research

**3a. Outcome Type:**

Change in Knowledge Outcome Measure

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
2008	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). Objectives include: 1. Identify and examine developmental assets of youth in rural Florida communities. 2. Examine youth developmental assets and deficits specifically related to four external (Support, Empowerment, Boundaries and Expectations) and four internal (Commitment to Learning, Positive Values, Social Competencies, Positive Identity) categories. 3. Examine youth developmentally assets of youth in rural Florida communities according to five specific social contexts (Personal Assets, Social Assets, Family Assets, School Assets, and Community Assets) 4. Examine other dimensions of youth well-being and asset/protective factors guarding against risks and analyze data on control variables representing age, gender, household size, rural location type (farm/non-farm), family composition, and education. 5. Determine strategies and policy recommendations toward increasing youth assets and reducing youth deficits in rural communities.

**What has been done**

This second year of the Project focused on completion of Objective 1. This objective is: (01) Identify two to four rural Florida counties for extensive onsite research. While step 1A is an ongoing process throughout the project, the comprehensive literature review has been conducted for a basic profile of research designs, results and conclusions related to the identification of developmental assets of youth as follows: a. All articles found on search engines for the last two decades are kept current by doing a review of the most recent articles every four months. b. All Search Institute articles and books and website are constantly monitored for the latest research and designs from that national effort; c. Articles focusing on risk and protective factors for specific youth problems and youth populations are monitored and collected every four months. All literature and research results are integrated into the existing literature review on a continuous basis. Step 1b. Identify two to four rural Florida counties for extensive onsite research. Data has been collected utilizing the Developmental Asset Profile (DAP) from the Search Institute and the Youth, Community and Support in Florida questionnaire (Brennan & Barnett) during Year One and Year Two. Study participants were located for this Year Two with the assistance of extension agents in Hamilton County and Bradford County. This adds to the existing data base of participants from Lafayette County and Polk County for four counties of rural youth data in Florida. Data is currently been entered and cleaned for analysis. In addition, data is currently being collected for CYFAR youth in the after-school programs in Polk and Bradford for Year Two. Once this data arrives, it will complete the data set for analysis upon data entry. Data was analyzed on adolescent and emerging adult males (n=234) at a large coeducational university in SE US. PARTICIPANTS: Faculty participants were Mark Brennan, Jerry Culen, Marilyn Lesmeister, and Glenn D. Israel. Collaborators were extension agents in Polk, Bradford, Hamilton and Lafayette Counties. Technical assistance on data entry and analysis included graduate students and part-time staff, Liesbeth Schmidt, Ph.D.; Stephanie Bates, MSFYCS; Carmengloria Vargas, and Kate Fletcher, MSFYCS. Graduate students benefited from the project by learning data collection and data entry. TARGET AUDIENCES: After-school program managers, youth development specialists, county extension agents, volunteers and parents, and student affairs staff are the primary target audience while teachers, school administrators, coaches, club sponsors and students are the secondary target audience. PROJECT MODIFICATIONS: Additional data was collected and analyzed on 18-24 yera old adolescent/emerging adult males at a large, coeducational university in the SE to explore assets as promoting resiliency among this population which is outside the age range of data collected on the larger project. This exploratory study led to new findings that will be published in men's studies literature on gender role conformity and resiliency building with a focus on affects on developmental assets as factors that promote resiliency.

**Results**

Data analysis was initiated after the first two counties of data were entered, however, this was early in the study (end of Y1), therefore, only two secondary studies could be completed during Y2; data is still being collected. These two preliminary studies have had critical findings, however, and are adding to the body of literature known about youth and assets. Data has been entered on assets using the DAP and results were adjusted numerically for standardization and to match the 40 point scale used by Search Institute. Study #1. Developmental Assets of At-Risk Youth in CYFAR After-School Programs (Bradford and Polk Counties). Data for both counties were analyzed and placed into five contextual asset categories: Personal, Social, Family, School and Community. Across all five categories, Polk County youth attending the CYFAR After-School Programs scored higher on asset profiles than Bradford. This indicates youth in Polk County receive supports that contribute to their overall well-being moreso than Bradford County youth do. This is an interesting result as the Polk County youth reside in the housing projects in Winter Haven FL where the community center is located and after-school programming is delivered. The Polk County youth have reported that they have 28/40 Personal assets; 27/40 Social Assets; 28/40 Family Assets; 28/40 School Assets and 25/40 Community Assets. Bradford County youth indicate that they have 22/40 Personal Assets; 21/40 Social Assets; 27.8/40 Family Assets; 25/40 School Assets; and 24/40 Community Assets. The highest contextual assets for Polk County youth, Personal, Family and School, indicate that youth have supports that are protective against risk factors and that will help to reduce a risk of a range of negative youth outcomes and promote thriving. Bradford youth have high Family and School Assets, also indicating supports that provide a safe, warm and supportive family with good parent-child communication and a safe school climate. This provides support that youth are benefiting from the overall impact of the after-school program and that the programs are affecting their overall general well-being. Study #2 Gender Role Conformity and Developmental Assets of Adolescent/ Emerging Adult Males. Analysis was conducted to examine resiliency, asset factors that promote resiliency, and gender role conflict. Ho 1: The more Gender Role Conflict males experience, the less overall resilience they will report; Ho2: The effect of Gender Role Conflict on resilience will be stronger in homosexual males. Results indicate that Rational Emotionality is the gendr role conflict most closely associated with decreased resiliency and these patterns significantly affected patterns of resiliencs as follows: Internal Asset Score (-.199)\*\* and External Asset score (-.214)\*\*.

**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

- Natural Disasters (drought, weather extremities, etc.)
  - Economy
  - Appropriation changes
  - Government regulations
  - Competing Public priorities
  - Competing Programmatic Challenges

## 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

Historically, research in the area of families, youth and communities have been somewhat sparse. All faculty with a research appointment are now expected to have a CRIS research study. For this reason there is an increase in the number of research projects that have recently been funded and approved in the areas of families, youth and communities in 2007-2008. These include the following:

- The intergenerational, psychosocial, and developmental context of risk taking among youth
- Developing and evaluation adult and youth volunteer systems to support youth development
- Identifying developmental assets of rural Florida youth for Enhancing positive youth outcomes
- Evaluating knowledge, attitudes, skills, education and effectiveness of youth/adult partnerships in civic engagement
  - Risk and resiliency in youth, families, and communities & strategies that promote positive development
  - Social structural influences on educational processes and outcomes in rural America

### Key Items of Evaluation

Economic, environmental and fiscal impact analysis of agricultural, natural resources, and amenity-based services in Florida Communities

The economic impacts of various economic activities are increasingly being considered in the public policy arena. In Florida, rapid development has occurred in many areas without due process to planning, and natural landscape amenities that are the basis of the large tourism sector may be compromised. The purpose of this project is to evaluate economic, environmental and fiscal impacts of agricultural, natural resource and related amenity-based industries in Florida, in order to support development for economically efficient outcomes.

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. Much of my work in this area relies upon the use of input-output models constructed with the Implan Pro software and associated databases, which represent the structure of regional economies, and provide economic multipliers to estimate the secondary impacts of industry purchases and employee household consumer spending. Through the UF/FRED program in economic impact analysis, we have conducted research projects to evaluate a wide range of Florida's agricultural and natural resource-based activities, with in-depth sponsored projects conducted for major industries in Florida such as environmental horticulture, forestry, fisheries, citrus, healthcare, tourism, golf and mixed residential-commercial planned unit development. In addition, we have evaluated a variety of development projects, institutions and events in individual counties or regions of Florida and other states. Agriculture, food manufacturing and natural resources are major sectors of the Florida economy, with total output (revenue) impacts approaching \$100 billion annually. Many people, especially urban dwellers and recent immigrants, are not aware of its historic and ongoing importance, which sometimes leads to conflicts over resource use and enactment of public policies that may be harmful to the industry. The objective of this extension program is to provide information on the role and economic contribution of these basic industries and related activities and events, in order to achieve greater awareness and understanding by government regulators, policy-makers, and the public at large. Extension publications in this program area are made publicly available on a program website (<http://economicimpact.ifas.ufl.edu>). Many smaller studies and consultations have also been provided in support of local economic development efforts. I conducted training workshops on economic impact analysis for UF/IFAS county extension faculty. I have also been involved with the UF/IFAS Agriculture Awareness Initiative and county extension faculty to identify educational needs and develop region-specific information products to enhance public knowledge about agriculture.

This work is extensively used by University of Florida administration, by industry associations, and allied professionals, to evaluate industry trends and market opportunities, to assess the impact of regulatory actions, and inform policy debates around proposed legislation and funding decisions. Economic impact studies conducted at the request of some of the major industries in Florida, such as citrus, forestry, environmental horticulture, golf and tourism, have demonstrated the economic contributions of these industries in terms of employment (jobs), value added (income) and output (sales revenues). Feedback by industry sponsors indicates that this information has been valuable for gaining public recognition and in obtaining fair consideration on issues such as labor, land use, water quality, pesticide regulation, and international trade.

**Program #15**

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

**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%	58%	
902	Administration of Projects and Programs	0%	0%	10%	
903	Communication, Education, and Information Delivery	0%	0%	32%	
	<b>Total</b>	0%	0%	100%	

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

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>				
<b>Actual</b>	0.0	0.0	2.3	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	19456	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	19456	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	19456	0

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

**1. Brief description of the Activity**

This is area has new research projects related to program support and administrative support, communication and information delivery.

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

county and state faculty  
researchers in these areas

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

**1. Standard output measures**

**Target for the number of persons (contacts) reached through direct and indirect contact methods**

	<b>Direct Contacts Adults</b>	<b>Indirect Contacts Adults</b>	<b>Direct Contacts Youth</b>	<b>Indirect Contacts Youth</b>
<b>Year</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>
<b>Plan</b>	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
2008	0	0	0	0

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

**Patent Applications Submitted**

<b>Year</b>	<b>Target</b>
<b>Plan:</b>	
2008 :	0

**Patents listed**

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

**Number of Peer Reviewed Publications**

	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Plan</b>			
2008	0	0	0

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

*Not reporting on this Output for this Annual Report*

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	{No Data Entered}	{No Data Entered}

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

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

O No.	OUTCOME NAME
1	



**Outcome #1**

**1. Outcome Measures**

*Not reporting on this Outcome for this Annual Report*

**2. Associated Institution Types**

**3a. Outcome Type:**

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
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**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
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**V(H). Planned Program (External Factors)**

**External factors which affected outcomes**

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

**Brief Explanation**

The biggest impact is being caused by the present economic crisis

**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 is a relatively new area for Florida to report in. Several projects that have just been approved are as follows however there are no results yet:

Best New Faculty Profession Development Trainings that improve retention  
Social structural influences processes and outcomes in rural America

### **Key Items of Evaluation**

With the need for the inclusion of science-based concepts into the agriscience curriculum, new methods for teaching these materials need to be investigated. The purpose of this project is to examine the effectiveness of various delivery models for agriscience content knowledge gain and skill transfer. This project will be conducted in three phases. It will employ both quantitative and qualitative design research methods and techniques to address the project objectives. Phase I of this project will focus on identifying the current status of agriscience education. Survey research methods would be employed to gather most of the data for this phase of the project. Data collected would include identifying the science performance levels of students enrolled in agriscience education, instructor knowledge of inquiry-based teaching methods, instructor science content knowledge, and level of collaboration between agriscience and science educators. Attitudinal data will focus on perceptions of science integration and incorporation by instructors. A timeframe of one year is allotted for this phase. Phase II involves the development of a delivery model for agriscience education. This model would include curriculum, teaching methods, and evaluation. This model would be developed based upon the findings of Phase I, literature review, and collaboration with content and curriculum experts. Critical data analysis techniques will be utilized to review collected data. A timeframe of two years is allotted for this phase. The third phase involves implementing the delivery model in a small number of agriscience programs as a pilot test. Data collected both quantitatively and qualitatively would be used to assess and refine the components of the delivery model. Experimental research design methods will be employed during this phase of the project. Following the pilot test, the revised delivery model would then undergo further field testing with a larger number of instructors and students. A timeframe of two year is allotted for this phase.

Outputs of this project have been disseminated via a variety of modes. In addition to the traditional modes of print, results of this project have impacted professional development offerings to secondary school teachers in Florida and throughout the United States. The teacher and student inquiry scales adapted from Dunbar (2002) hold promise as an important starting point for a continuing line of investigation into the current status of inquiry based learning in agricultural education. The present study found that teachers used inquiry oriented strategies on average between two and three times per week. Furthermore, on average they asked students to engage in inquiry based strategies nearly once per month. These findings lead the researchers to conclude that while the participants in this study may recognize the value of inquiry based strategies, they tend to implement them in a rather teacher centered as opposed to student centered way. In order to prepare agriculture teachers to meet the National Science Teachers Association's (2007) call for students to be engaged weekly in inquiry based data collection and learning, notable changes will be needed in agriculture teachers' current practice in Southern State. Addressing previously discussed findings regarding facility and class size challenges may prove beneficial in increasing the degree of student oriented inquiry. However, professional development will be needed to assist teachers in developing strategies to transition from student oriented inquiry only once per month to an increased level of frequency. Using these scales, a single measure of the level of inquiry agriculture teachers report means little. Additional examination using this instrument over time is recommended to assess changes in level of integration. The teacher and student inquiry scales are potentially useful in evaluating differences between groups of teachers with differing levels of experience, different program types, or with varying pathways to the profession. This tool also holds promise in measuring teacher change prior to and following interventions to assist them in enhancing their proficiency with inquiry based learning. In order to answer the call of legislative efforts to integrate core academic content as well as calls from the science education community to increase the implementation of inquiry based learning, additional work and diligence will be required in the agricultural education community.

**Program #16**

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

**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
402	Engineering Systems and Equipment	0%	0%	23%	
403	Waste Disposal, Recycling, and Reuse	0%	0%	27%	
404	Instrumentation and Control Systems	0%	0%	7%	
405	Drainage and Irrigation Systems and Facilities	0%	0%	43%	
<b>Total</b>		0%	0%	100%	

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

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

Year: 2008	Extension		Research	
	1862	1890	1862	1890
<b>Plan</b>				
<b>Actual</b>	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	53919	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	53919	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	53919	0

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

**1. Brief description of the Activity**

Gre

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

General public  
governmental agencies  
industry

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

**1. Standard output measures**

**Target for the number of persons (contacts) reached through direct and indirect contact methods**

	<b>Direct Contacts Adults</b>	<b>Indirect Contacts Adults</b>	<b>Direct Contacts Youth</b>	<b>Indirect Contacts Youth</b>
<b>Year</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>	<b>Target</b>
<b>Plan</b>	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
2008	{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    Target**

**Plan:**

2008 :    {No Data Entered}

**Patents listed**

{No Data Entered}

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

**Number of Peer Reviewed Publications**

	<b>Extension</b>	<b>Research</b>	<b>Total</b>
<b>Plan</b>			
2008	{No Data Entered}	{No Data Entered}	{No Data Entered}

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

*Not reporting on this Output for this Annual Report*

<b>Year</b>	<b>Target</b>	<b>Actual</b>
2008	{No Data Entered}	{No Data Entered}

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

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

O No.	OUTCOME NAME
1	

**Outcome #1**

**1. Outcome Measures**

*Not reporting on this Outcome for this Annual Report*

**2. Associated Institution Types**

**3a. Outcome Type:**

**3b. Quantitative Outcome**

Year	Quantitative Target	Actual
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**3c. Qualitative Outcome or Impact Statement**

**Issue (Who cares and Why)**

**What has been done**

**Results**

**4. Associated Knowledge Areas**

KA Code	Knowledge Area
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**V(H). Planned Program (External Factors)**

**External factors which affected outcomes**

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

**Brief Explanation**

{No Data Entered}

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

Certain agricultural practices contribute to the problem of phosphorus in water. This project examines the relative susceptibility of various waste-P sources to loss and means to reduce the loss. A previous (4 month) greenhouse study was extended to 16 months to assess the long-term phytoavailability of biosolids-P sources. Results confirmed that biosolids application rates should increase to account for the reduced phytoavailability of less soluble-P biosolids, but no application rate adjustment is warranted for BPR and BPR-like (high soluble-P) biosolids. Uptake of P by plants was well correlated with the labile P load (biosolids P saturation index, PSI, times total-P load), suggesting that PSI is a useful a priori indicator of biosolids-P phytoavailability. Data from lab, greenhouse, and field studies confirm that applying P-sources at any rate, along with sufficient Al-drinking water treatment residual (WTR) to give a soil P storage capacity (SPSC) value of zero greatly reduces P loss potential with no negative agronomic impacts. Thus, P-containing amendments (e.g., biosolids, manures) need not be restricted to uneconomical P-based rates to provide environmental protection against fugitive P losses. There is no evidence of excessive (phytotoxic) plant accumulation of Al, nor unmanageable impacts on grazing animals that might directly consume surface applied water treatment residual. Complete mineralization (to CO<sub>2</sub>) of two antimicrobials commonly found in biosolids was minimal in biosolids-amended soils, but most of the parent compounds and/or metabolites appear to exist in bound residues of limited lability. Studies continue to assess the ultimate lability of the bound residues to plants, soil organisms, and leachates.

Phosphorus impacts on water quality are of national concern and are of special concern in FL where soils and hydrology allow ready P mobility through soils to ground and surface waters. Our work demonstrated that organic sources of P can be safely applied to vulnerable FL soils if managed appropriately. In particular, biosolids or manure applications need not be restricted to the very low P-based rates (based on crop P requirements) to protect water quality. The environmental hazard of P can be minimized by careful selection of biosolids or manures with low or moderate P solubility, or by co-applying the organic sources of P with WTRs to attain a soil P storage capacity value of zero. Applying low or moderate soluble P sources, even at high rates (e.g., N-based) can minimize environmental losses of P when done responsibly. Being able to apply biosolids or manures at N-based rates is critical to municipalities and farmers searching for means to sustainably and economically recycle the resources. Studies of the fate and transport of biosolids-borne "microconstituents" are necessary to accurately assess environmental and human risk from the numerous PPCPs reported in modern biosolids and to ensure the safety and sustainability of biosolids land application programs. Studies of chemicals simply spiked into soils likely do not reflect the risks associated with biosolids-borne chemicals. Studies are also required to address the long-term lability of "bound residues" that apparently characterize soil-retained microconstituents to counter concerns about an organics "time bomb" similar to that for metals.

## Key Items of Evaluation

Florida growers are at a crossroads, with urbanization, high land prices, and the need to protect the environment affecting profitability. If growers are to survive, they must adopt new practices to remain competitive. Development and demonstrations of emerging technologies is essential to help growers remain profitable. This project will evaluate improved automation, control, and distribution technologies to increase irrigation efficiency. Components of the soil - plant - water cycles along with sensors will be evaluated to improve irrigation scheduling models for various fruit, vegetable, and ornamental crops.

Irrigation management tools have been developed to assist container nursery growers to better manage irrigation and fertilizers. Techniques include soil moisture sensors, weighing cradles, and leachate collectors. Soil moisture sensors have been calibrated for specific potting mixes (peat, bark, and sand mixes). Results for various combinations of pot size, plant species, and plant age have been provided to growers on a timely basis so they can adapt their irrigation management to current conditions. For smaller plants (7 gallons and less) weighing cradles have been developed to provide continuous feedback on the effects of irrigation, rainfall, and plant water use. Data is presented in graphical format for help growers understand the effects of their irrigation programs. Similarly, leachate collectors have been used to measure the quantity of solution leached from pots during irrigation and rainfall events. The leachate collectors provide immediate feedback should overirrigation occur.

Working with several container nurseries, we have introduced them to moisture sensing devices and other water and nutrient management tools that are available. The purpose is to better educate them on how to more effectively use these devices to determine duration and frequency of daily irrigation cycles. Some of the results include: Nursery 1 - Converted from using one irrigation per day to cyclic irrigation where he irrigates three or more times per day with lesser amounts. The owner stated that he had saved approximately 2/3 in water usage, not to mention the reduction in nutrient leachate. Nursery 2 - As the result of a leachate collection experiment, Nursery 2, reduced his water usage by 20%. This was a result of him observing how much water was leeching from his containers on a weekly basis. Nursery 3 - Nursery 3 were using moisture sensor in indicator containers to determine when to initiate irrigation based on computer graphics, which equated into increased plant growth. This reduced water usage as well as nutrient leeching. This was a good tool to determine more precise irrigation.