

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

**Program # 2**

**1. Name of the Planned Program**

Increase agricultural profitability and sustainability

Reporting on this Program

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

1. Program Knowledge Areas and Percentage

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

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

1. Actual amount of FTE/SYs expended this Program

Year: 2012	Extension		Research	
	1862	1890	1862	1890

Actual Paid Professional	61.4	6.8	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

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

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

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

**1. Brief description of the Activity**

**Brief description of activities**

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

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

**Brief description of the target audiences**

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

**3. How was eXtension used?**

eXtension use was not reported for this program

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

**1. Standard output measures**

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

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

**Patent Applications Submitted**

Year: 2012

Actual: 0

**Patents listed**

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

**Number of Peer Reviewed Publications**

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

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

**Output Target**

**Output #1**

**Output Measure**

- {No Data Entered}

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

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

O. No.	OUTCOME NAME
1	Reduce the cost of animal management that leads to increased profitability
2	Increasing knowledge concerning effective pest management
3	Increase behaviors that lead to more sustainable bio-energy
4	Increasing behavior that improves effective pest management
5	Increase knowledge related to sustainable bio-energy
6	Change in condition related to sustainable bio-energy
7	Increase knowledge that improves water quality and quantity
8	Increase behaviors that lead to better water quality and quantity
9	Increase changes in positive, wide impacts related to water quality and quantity
10	Increase behavior changes leading to improved profitability and sustainability

## **Outcome #1**

### **1. Outcome Measures**

Reduce the cost of animal management that leads to increased profitability

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

- 1862 Research

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

Change in Knowledge Outcome Measure

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

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

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

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

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

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

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

#### **Results**

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

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

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

## **Outcome #2**

### **1. Outcome Measures**

Increasing knowledge concerning effective pest management

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

- 1862 Research

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

Change in Knowledge Outcome Measure

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

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

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

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

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

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

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

#### **Results**

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

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

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

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

### **Outcome #3**

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

Increase behaviors that lead to more sustainable bio-energy

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

- 1862 Extension

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

Change in Action Outcome Measure

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

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

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

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

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

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

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

##### **Results**

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

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

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

**Outcome #4**

**1. Outcome Measures**

Increasing behavior that improves effective pest management

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

Year	Actual
2012	26641

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

**Issue (Who cares and Why)**

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

**What has been done**

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

**Results**

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

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

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

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

#### 4. Associated Knowledge Areas

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

#### Outcome #5

##### 1. Outcome Measures

Increase knowledge related to sustainable bio-energy

##### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2012	865

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

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

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

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

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

###### **Results**

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

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

#### 4. Associated Knowledge Areas

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

#### Outcome #6

##### 1. Outcome Measures

Change in condition related to sustainable bio-energy

Not Reporting on this Outcome Measure

#### Outcome #7

##### 1. Outcome Measures

Increase knowledge that improves water quality and quantity

##### 2. Associated Institution Types

- 1862 Extension
- 1890 Extension

##### 3a. Outcome Type:

Change in Knowledge Outcome Measure

##### 3b. Quantitative Outcome

Year	Actual
2012	18252

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

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

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

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

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

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

**Results**

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

**4. Associated Knowledge Areas**

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

**Outcome #8**

**1. Outcome Measures**

Increase behaviors that lead to better water quality and quantity

**2. Associated Institution Types**

- 1862 Extension
- 1890 Extension

**3a. Outcome Type:**

Change in Action Outcome Measure

**3b. Quantitative Outcome**

<b>Year</b>	<b>Actual</b>
2012	15752

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

**Issue (Who cares and Why)**

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

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

**What has been done**

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

**Results**

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

**4. Associated Knowledge Areas**

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

## **Outcome #9**

### **1. Outcome Measures**

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

Not Reporting on this Outcome Measure

## **Outcome #10**

### **1. Outcome Measures**

Increase behavior changes leading to improved profitability and sustainability

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

- 1862 Extension
- 1890 Extension

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

Change in Action Outcome Measure

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

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

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

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

Florida Small Farm Conference

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

New improvements were made this year in response to formal and informal meetings throughout the year including formal event evaluations, meetings with our stakeholder advisory committee, and suggestions from past and future attendees, speakers, and event chairs. Changes included:

?Expanded educational programming on Friday

?Improved preconference farm tours (more in-depth with more time and fewer stops)

?New educational tracks including Hydroponics and Beginning Farmer and Rancher

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

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

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

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

#### **Results**

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

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

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

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

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

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

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

?insect identification (97%);

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

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

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

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

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

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

#### 4. Associated Knowledge Areas

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

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

##### External factors which affected outcomes

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

##### Brief Explanation

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

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

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

### **Evaluation Results**

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

### **Key Items of Evaluation**

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

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

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

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

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

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