

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Global Food Security and Hunger

Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
204	Plant Product Quality and Utility (Preharvest)	5%	5%	0%	
205	Plant Management Systems	5%	5%	0%	
211	Insects, Mites, and Other Arthropods Affecting Plants	5%	5%	0%	
212	Diseases and Nematodes Affecting Plants	5%	5%	0%	
213	Weeds Affecting Plants	5%	5%	0%	
215	Biological Control of Pests Affecting Plants	5%	5%	0%	
216	Integrated Pest Management Systems	5%	5%	0%	
301	Reproductive Performance of Animals	5%	5%	0%	
302	Nutrient Utilization in Animals	5%	5%	0%	
306	Environmental Stress in Animals	5%	5%	0%	
307	Animal Management Systems	5%	5%	0%	
308	Improved Animal Products (Before Harvest)	5%	5%	0%	
311	Animal Diseases	5%	5%	0%	
312	External Parasites and Pests of Animals	5%	5%	0%	
313	Internal Parasites in Animals	5%	5%	0%	
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%	
503	Quality Maintenance in Storing and Marketing Food Products	5%	5%	0%	
603	Market Economics	5%	5%	0%	
	Total	100%	100%	0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	80.0	11.0	0.0	0.0
Actual Paid	150.2	15.5	0.0	0.0
Actual Volunteer	0.0	167.0	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
1630344	826017	0	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1630344	186975	0	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

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

2. Brief description of the target audience

- Producers
- Commodity Associations
- Owners/Operators
- Managers/Supervisors
- Workers/Laborers
- Allied Industry Representatives
- Small Farmers
- Government/Regulatory
- County government
- State government

- Federal government
- Tribal government
- International governing bodies
- Harvesting/Packing/Processing/Distribution
- Harvesters/Packers
- Processors
- Distributors/Transporters
- Retailers
- Importers/Exporters
- Youth and 4-H (K-12)
- Youth Educators
- Extension Faculty

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	1706855	4062040	0	0

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

Patent Applications Submitted

Year: 2014
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	172	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- {No Data Entered}

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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

Outcome #1

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	59581

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

According to the USDA National Animal Health Monitoring Service and other sources, reproduction efficiency in beef cattle can be increased by 5% to 20% by implementing certain preferred management practices. Assuming a 10% increase in reproductive efficiency above the typical 70% calving rate, it is estimated that program participants may realize additional production of 391,562 pounds of weaned calves annually. Further, assuming an average market price of \$171/cwt, this increase in production would translate to an increase of \$714,600 in annual producer income. This will result in greater economic viability of the producer, better positioning them to preserve the ranching land and its environmental benefits.

What has been done

The Livestock Extension program in Central Florida offered a series of five seminars in 2014 entitled "Managing Cattle Enterprises for Success." The purpose of the program is to provide cow-calf owners and operators with educational opportunities to assist them in identifying and applying management tools for the beef cattle operation that will maximize productivity of the cow herd and farm acreage, and returns on investment. A total of one hundred sixty-four (164) beef cattle operators participated in the five seminars, who collectively managed approximately 9000 head of cattle on over 40,000 acres. Topics covered in the seminars included nutrition and health management, bull selection, marketing strategies and heifer development. In addition, individual livestock producers received consultation services from the Livestock Extension Program.

Results

Following the seminar series, 75% of surveyed participants indicated an overall increase in knowledge as a result of the information received, and 57% indicated that they would adopt a new

management practice. A random survey of livestock producers (38), who utilized telephone, office, or field consultation services from the Livestock Extension Program, found that 91% had received information that helped them improve economic returns and/or environmental quality in their livestock operations.

4. Associated Knowledge Areas

KA Code	Knowledge Area
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
306	Environmental Stress in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
311	Animal Diseases
312	External Parasites and Pests of Animals
313	Internal Parasites in Animals
315	Animal Welfare/Well-Being and Protection

Outcome #2

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	30695

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The barriers faced by new farmers are vastly different from previous generations in that they must make detailed business plans, aggressively pursue marketing opportunities, and make difficult financial decisions. Previous market analyses cite that the school (institutional) sector may be

remunerative to small farmers or groups of farmers. Schools may serve a stable and consistent market for small farmers because of the size of population served seldom vary significantly and set menus are served at regular intervals.

What has been done

Extension activities as part of the FAMU New & Beginning Farmer Training Program and FAMU Small Farm to School Program provided educational opportunities that improve the likelihood of success for the next generation of small farmers, or agro-entrepreneurs. Farm business incubator and demonstration training sites were established for small groups to engage in hands-on, intensive training and assistance. Educational concepts taught included self-assessment, business enterprise assessment and business growth skills. The program also utilized established relationships with other public and private entities and sales/distribution channels, such as Small Farm to School, to open new opportunities for increasing sales and expand markets for agricultural products.

Results

As part of the FAMU New & Beginning Farmer Training Program and FAMU Small Farm to School Program, five young agro-entrepreneurs have formed a "loosely" organized producer group, and each submitted loan applications to Farm Credit to establish separate agro-business ventures utilizing Farm to School. Each participant has received a \$35,000 loan, and will pool these resources to facilitate Farm to School and USDA Commodity Program markets. The group also has plans to establish a limited liability corporation (LLC). Additionally, 2 agro-entrepreneurs are supplying products for local grocery stores, averaging \$500 per week in sales.

4. Associated Knowledge Areas

KA Code	Knowledge Area
603	Market Economics

Outcome #3

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
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2014

12805

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Federal and state agencies have identified a declining farm population, especially, limited resource farmers, as a major area of concern for the nation. Targeted efforts are necessary to address the capacity for small farms to become much more sustainable, while also taking advantage of production and marketing information and assistance to improve their economic situation.

What has been done

Ongoing FAMU Extension training programs targeted for limited resource producers are conducted through various venues, including one-on-one and group sessions, field days and demonstration projects. Many area farmers take advantage of the available training opportunities presented on a monthly and quarterly basis in such areas as enterprise production, market development, business management, value-added production, food safety, and labor and transportation logistics.

Results

As a result of FAMU farmer training activities, a hot pepper farmer has expanded his operation from 1 acre in 2013 to 5 acres in 2014. He now operates in two states (FL and GA) and has provided employment for 8 full time workers. He also provides a market for smaller growers by purchasing their produce for re-sale to his established markets in New York. He has established a refrigeration unit to cut down on spoilage and modified his fertilizer regime. As a result, his profits have increased significantly over last year's and he has been able to purchase a vehicle to assist with shipping and support himself financially from his farm business. His farm has been used as a model for visiting farmers from other states.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Diseases and Nematodes Affecting Plants
213	Weeds Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
306	Environmental Stress in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
311	Animal Diseases

312	External Parasites and Pests of Animals
313	Internal Parasites in Animals
315	Animal Welfare/Well-Being and Protection
402	Engineering Systems and Equipment
405	Drainage and Irrigation Systems and Facilities
503	Quality Maintenance in Storing and Marketing Food Products
603	Market Economics

Outcome #4

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	12597

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Several scholars have indicated that US youth and adults are no longer agriculturally literate (Frick, Birkenholz, Machtmes, 1995; Mayer & Mayer, 1974; Wright et al., 1994). It is likely, a large and growing number of Florida residents and visitors have low agricultural literacy due to industrialization, urbanization, ineffective communication, and increasing concerns with agricultural practices. Increased agricultural literacy leads to more informed decisions based on balanced information and can help improve the economic contribution participants make to local agriculture as well as improve cultural and community understanding of agriculture.

What has been done

Throughout the state Extension hosts farm tours for a variety of different audiences including, the general public, students, local community, government, and business leaders, hobby gardeners and farmers, and agriculturalists. Extension collaborates with industry, governmental, and non-profit partners on these tours. In Lake County, the farm tour reaches the general public including retirees. This past year the tour included 102 participants. This Extension office collaborates with

Farm Bureau and Farm Credit to conduct the farm tour. The tour included stops at a dairy, equestrian farm, nursery, orchard, and multi-crop organic u-pick operation. In the between each stop on bus narration was provided to give participants further information about agriculture, Extension, the places they were visiting, and the crops they were seeing.

Results

As a result of a farm tour in Lake County Florida, 81% of participants reported that they planned to utilize the services offered by their county Extension office in the future. Intent to utilize Extension services by these participants indicates that these participants value Extension as a source of information. In addition, it indicates that the Extension service will continue to have the opportunity to increase participants' knowledge of agriculture and natural resource issues. After the farm tour, participants also reported having a deeper understanding of agriculture in Lake county (99%), being more aware of the agricultural businesses in the county (100%), and more aware of the services offered by Extension (97%).

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Diseases and Nematodes Affecting Plants
213	Weeds Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
306	Environmental Stress in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
311	Animal Diseases
312	External Parasites and Pests of Animals
313	Internal Parasites in Animals
315	Animal Welfare/Well-Being and Protection
402	Engineering Systems and Equipment
405	Drainage and Irrigation Systems and Facilities
503	Quality Maintenance in Storing and Marketing Food Products
603	Market Economics

Outcome #5

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	4086

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Recent USDA Agriculture Census statistics show the number of Florida farms conducting agritourism increased dramatically from 281 in 2007 to 724 in 2012. While the economic value of Florida agritourism increased by 38% to more than \$15 million, Florida lags behind other southeastern states in developing this value added use of agricultural land. For example, Tennessee agritourism is valued at more than \$34 million (Jensen et al. A Snapshot of Tennessee Agritourism: 2013 Update. The University of Tennessee). Polk County contains abounding agriculture and is strategically located to benefit from proximity to tourist destinations such as Walt Disney World, Busch Gardens and Legoland Florida.

What has been done

The Polk County Small Farms Extension program is taking steps to develop agritourism in Central Florida. A blueberry industry spring tour and a public meeting to discuss agritourism possibilities and challenges were conducted in 2014. Cooperators and participants of the tour were interested in planning or attending more tours and valuable experience and feedback was gathered for the future.

Results

Evaluations of the public meeting (n=24) showed the workshop improved knowledge by 42-68%. Participants (91%) planned to use the knowledge gained in their business; share the knowledge with others (96%) and tell others about their experience at the meeting (96%). Respondents (94%) were interested in working together to develop materials to connect the public to agriculture such as a ?blueberry trail? and completed a connection card to follow up in the future.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Diseases and Nematodes Affecting Plants
213	Weeds Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems
301	Reproductive Performance of Animals
302	Nutrient Utilization in Animals
306	Environmental Stress in Animals
307	Animal Management Systems
308	Improved Animal Products (Before Harvest)
311	Animal Diseases
312	External Parasites and Pests of Animals
313	Internal Parasites in Animals
315	Animal Welfare/Well-Being and Protection
402	Engineering Systems and Equipment
405	Drainage and Irrigation Systems and Facilities
503	Quality Maintenance in Storing and Marketing Food Products
603	Market Economics

Outcome #6

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	1032

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

According to USDA, about 15% percent of the world's food is now grown in urban areas. City and suburban agriculture takes the form of backyard, roof-top and balcony gardening, community gardening in vacant lots. Community gardens promote healthy communities and provide food security for many people. These gardens can also promote environmental awareness and provide community education.

What has been done

FAMU Extension Agent's gardening program involves training for a of school and community gardens in Leon and Wakulla Counties. Many after school programs in these counties are incorporating gardening in their activities and students are gaining the knowledge and skills to manage these gardens while getting physical exercise from working in the plots.

Results

As a result of FAMU Extension Agent's gardening program activities, the number of community gardens in Leon and Wakulla Counties has increased by 40% and most of the gardens full to capacity with a waiting list. At least 80% of all the public schools in Leon and Wakulla Counties have school gardens and some even have multiple gardens.

4. Associated Knowledge Areas

KA Code	Knowledge Area
204	Plant Product Quality and Utility (Preharvest)
211	Insects, Mites, and Other Arthropods Affecting Plants
212	Diseases and Nematodes Affecting Plants
213	Weeds Affecting Plants

Outcome #7

1. Outcome Measures

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

Not Reporting on this Outcome Measure

Outcome #8

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	7934

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Florida tomato growers are highly reliant on copper-based compounds for managing bacterial spot and speck. . In field trials conducted at the GCREC and grower sites over the 5 years, Actigard was demonstrated as a superior product to copper-based compounds for managing bacterial spot and speck and for improving crop yields. Growers have been reluctant to adopt Actigard due to concerns of negative impact on tomato yields.

What has been done

This information (as well as the data discussed in the results section) has been passed to extension agents, growers, crop consultants and other industry representatives during visits, field consultations, and meetings to encourage other growers to reduce copper usage during production.

Results

Several growers have now either reduced their copper inputs (by >50%) or stopped using copper-based pesticides altogether and have adopted Actigard as their standard for managing bacterial spot and speck. Several growers, representing nearly 6,000 acres of production, have reported that they observed little difference in disease severity or yields between copper and non-copper treated areas, and were happy with their adoption of Actigard. This change in behavior represents a significant reduction in the use of copper-based compounds that build up in the soil. This will also help growers better utilize mancozeb, which is commonly applied with copper to enhance bactericidal activity, against fungal diseases like target spot.

4. Associated Knowledge Areas

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

Outcome #9

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1890 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	2978

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

For 11 years (1998-2008), the same 6 "principal" varieties dominated the south Florida sugarcane landscape. By definition, a "principal" sugarcane variety occupies at least 1% of south Florida's sugarcane acreage. In mid-2007, the abrupt arrival of virulent sugarcane Orange Rust threatened the productivity of these historically popular varieties. Significantly, two principal varieties (CP80-1743 and CP89-2143) occupying 49.7% of Florida's 2007 sugarcane landscape were found to be particularly susceptible to the orange rust pathogen.

What has been done

Starting in 2008, annual extension programming efforts (sugarcane variety field days, fact sheets for new variety releases, disease and pest alert workshops, and annual Florida Sugarcane Variety Census publications authored by this agent) have deliberately highlighted new disease-resistant variety releases and promising lines still in the development pipeline.

Results

These educational efforts have led to desired practice change by Florida sugarcane farmers, namely a willingness to gradually adopt new varieties showing resistance to orange rust which has supported the preferred situation, namely a steady increase in genetic diversification across the sugarcane industry. Starting in 2009, data compiled by this agent document an increased

willingness by Florida sugarcane farmers to field-test new varieties on large acreages. Since 2009, 4 new sugarcane varieties have been adopted at a scale making them new principal varieties. As a percentage of south Florida's annual sugarcane acreage, the adoption of these 4 new principal varieties has increased over time from 1.6% (2009) to 5.6% (2010), 10.9% (2011), 26.3% (2012), and 34.9% (2013). Furthermore, favorable practice change also occurred with respect to reducing inventories of historically popular principal varieties that were showing increasing susceptibility to orange rust. Thus, the combined acreages of CP80-1743 and CP89-2143 have declined from 49.7% (2007) to 21.1% (2013) of south Florida's sugarcane crop. For 2013, 87% of the entire south Florida "plant cane" crop (new sugarcane plantings for the 2013 growing season) was composed of 12 principal varieties. On average, this planting effort will produce annual sugarcane harvests over the next 3 years. This 87% represents a significant long-term investment by Florida sugarcane farmers that represents favorable behavioral change relative to the static variety preferences that dominated during 1998-2008. This desired behavioral change by Florida sugarcane farmers supports the desired outcome, namely increased genetic diversification and adoption of disease-resistant sugarcane varieties that require fewer crop protection inputs.

4. Associated Knowledge Areas

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

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

Brief Explanation

Many parts of the state are still struggling due to the economy. This leads to greater numbers of people in need of help. Controversial issues such as climate change and GMOs take additional time and care when building relationships and trust with clientele, partners, and other stakeholders. Cuts to the university budget in year's past continue to have some impact. We are in the process of evaluating our Extension staffing needs statewide to ensure we are using our human resources most efficiently.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

UF and FAMU's key evaluations, both quantitative and qualitative, are reported under the State Defined Outcomes section. Ideally, we would like to have statewide data on more focused, key indicators. UF/IFAS is currently working on an "Extension Toolbox" in Qualtrics that will store common survey instruments and questions for all our major planned programs to be used by UF and FAMU Extension county faculty and state specialists. This will greatly improve our ability to gather statewide data on global food security and hunger,

including the NIFA preferred indicator for this area: the number of producers statewide indicating adoption of recommended practices.

Key Items of Evaluation

No additional information to provide.