Focus Team Year in Review - 2008

G1F1c6 – Fruits and Vegetables

Faculty

	Faculty Name	Unit	Effort*
1	Adcock, Collin W	Washington County - Northwest	25%
2	Alleyne, John C	Highlands County - South	10%
3	Andreasen, Jr, Arland M	Washington County - Northwest	2%
4	Bates, Robert P	Food Science and Human Nutrition	90%
5	Beckford, Fitzroy B	Lee County - South Central	5%
6	Bolques, Alejandro	Gadsden County - Northwest	15%
7	Brecht, Jeffrey K	Horticultural Sciences	17%
8	Breman, Jacque W	Union County - Northeast	10%
9	Carter, Roy L	Gulf County - Northwest	5%
10	Cuda, James P	Entomology and Nematology	1%
11	Culbert, Daniel F	Okeechobee County - South	5%
12	Demorest, Donna N	Columbia County - Northeast	15%
13	Dinkins, David A	St. Johns County - Central	10%
14	Donovan, Thomas F	St. Johns County - Central	50%
15	Drew, David A	Levy County - Northeast	14%
16	Dukes, Michael D	Agricultural and Biological Engineering	20%
17	Edwards, Jeremy D	Gulf Coast REC - Balm	100%
18	Ehsani, Mohammad R	Citrus REC - Lake Alfred	50%
19	England, Gary K	Sumter County - Central	30%
20	Eubanks, Shepard D	Holmes County - Northwest	10%
21	Gevens, Amanda J	Plant Pathology	40%
22	Gillett-Kaufman, Jennifer L	Entomology and Nematology	10%
23	Halman, Robert D	Collier County - South Central	10%
24	Harmon, Philip F	Plant Pathology	33%
25	Harrison, George L	Leon County - Northwest	10%
26	Hochmuth, Robert C	North Florida REC-Suwannee	20%
27	Hylton, Trevor A	Florida A&M University	35%
28	Johnson, Libbie	Escambia County - Northwest	5%
29	Lamberts, Mary L	Miami-Dade County - South	40%
30	Leppla, Norman C	Entomology and Nematology	5%
31	Liburd, Oscar E	Entomology and Nematology	80%
32	MacRae, Andrew W	Gulf Coast REC - Balm	90%
33	McAvoy, Eugene J	Hendry County - South	50%
34	Migliaccio, Kati W	Tropical REC - Homestead	25%
35	Mizell, III, Russell F	North Florida REC - Quincy	40%

36	Morgan, Kelly T	Southwest Florida REC - Immokalee	31%
37	Mullins, Daniel E	Santa Rosa County - Northwest	30%
38	Muralles, Lester	Gadsden County - Northwest	35%
39	Olczyk, Teresa	Miami-Dade County - South	20%
40	Olson, Clay B	Taylor County - Northeast	7%
41	Olson, Stephen M	North Florida REC - Quincy	80%
42	Osborne, Jason L	Miami-Dade County - South	50%
43	Parsons, Lawrence R	Citrus REC - Lake Alfred	10%
44	Peres, Natalia A	Gulf Coast REC - Balm	80%
45	Pernezny, Kenneth L	Everglades REC - Belle Glade	10%
46	Powell, Eddie	Walton County - Northwest	40%
47	Price, James F	Gulf Coast REC - Balm	75%
48	Rice, Ronald W	Palm Beach County - South	5%
49	Ritenour, Mark A	Indian River REC - Ft Pierce	5%
50	Roka, Fritz M	Southwest Florida REC - Immokalee	5%
51	Sargent, Steven A	Horticultural Sciences	60%
52	Schneider, Keith R	Food Science and Human Nutrition	10%
53	Schuster, David J	Gulf Coast REC - Balm	100%
54	Scott, John W	Gulf Coast REC - Balm	50%
55	Selph, Jr, James F	Desoto County - South Central	5%
56	Simonne, Amarat H	Family, Youth and Community Sciences	10%
57	Simonne, Eric H	Office of District Directors	100%
58	Snodgrass, Crystal A	Manatee County - South Central	95%
59	Stanley, Craig D	Gulf Coast REC - Balm	50%
60	Sui, Dezhi David	Palm Beach County - South	95%
61	Swisher, Marilyn E	Family, Youth and Community Sciences	30%
62	Treadwell, Danielle D	Horticultural Sciences	15%
63	Tyree, Allen B	Hamilton County - Northeast	7%
64	Tyson, Richard V	Seminole County - Central	20%
65	Vallad, Gary E	Gulf Coast REC - Balm	75%
66	Vansickle, John J	Food and Resource Economics	70%
67	Venrick, Dana M	Volusia County - Central	3%
68	Ward, Bruce H	Walton County - Northwest	10%
69	Warren, Mark W	Flagler County - Central	15%
70	Weaver, Marvin F	Gilchrist County - Northeast	5%
71	Webb, Susan E	Entomology and Nematology	20%
72	Whidden, Alicia J	Hillsborough County - South Central	95%
73	Williamson, Jeffrey G	Horticultural Sciences	75%
74	Wright, Alan L	Everglades REC - Belle Glade	40%

* Represents the faculty member's estimated time spent in this focus area as a portion of all programmatic effort expended during the year.

Clientele Contacts *(as of 3/4/09-data are preliminary; do not distribute or use in reporting)*

Comparison Group	Educational Materials	Field Visits	Office Visits	Group Participation	Phone Consults	Email Consults	Web Visits*
G1F1c6	561	1,593	2,722	37,368	11,252	10,726	622,731
G1F1**	78,437	14,024	28,404	230,115	84,700	84,717	8,266,856
Goal 1	79,285	15,292	35,141	272,362	97,416	109,990	17,270,106
All Goals	161,329	78,710	157,411	3,503,004	414,886	582,577	32,098,562

*Web Visits may contain duplicated counts. **All commodities combined.

Volunteers *(as of 3/4/09-data are preliminary; do not distribute or use in reporting)*

Comparison Group	Volunteer Headcount	Volunteer Hours
G1F1c6	186	4,215
G1F1*	2,585	56,116
Goal 1	2,974	63,511
All Goals	27,901	1,138,419

* All commodities combined.

Multi-State Activity *(as of 3/4/09-data are preliminary; do not distribute or use in reporting)*

State	Faculty Headcount
Southern Regional	2
Alabama	10
California	4
Georgia	17
Illinois	1
Louisiana	1
Maryland	1
Massachusetts	1
Mississippi	1
North Carolina	3
New Jersey	1
New York	1
Oklahoma	1
South Carolina	3
Texas	1
Unduplicated Headcount	24

Outcomes *(as of 3/3/09-data are preliminary; do not distribute or use in reporting)*

Comparison Group	Number Evaluated for Change in Knowledge	% Who Changed	Number Evaluated for Change in Behavior	% Who Changed	Number Evaluated for Change in Condition	% Who Changed
G1F1*	38,032	86.9%	23,329	69.9%	15,338	57.8%
Goal 1	58,575	86.5%	28,793	72.6%	18,059	60.2%
All Goals	392,660	82.3%	194,294	72.0%	115,438	67.0%

* All commodities combined.

Impacts *(as of 2/23/09-data are unedited and preliminary; do not distribute or use in reporting)*

Faculty (Author)	Unit	Impact/Outcome/Success Story
Pernezny, Kenneth L	Everglades REC - Belle Glade	Approximately 110 clientele attended 2 pepper cultivar field days, which emphasized comparisons of 28/30 cultivars for resistance to bacterial spot. All attendees increased their knowledge of specific race resistance available and made subsequent cultivar choices based on these 2 extension programs. Some varieties displayed resistance to 8 of the 10 known races of Xanthomonas euvesicatoria.
Leppla, Norman C	Entomology and Nematology	Grower's IPM Guide for Florida Tomato and Pepper Production The Grower's IPM Guide for Florida Tomato and Pepper Production is a comprehensive, interdisciplinary resource that leads the user through the process of planning a crop with up front decisions about pest and disease prevention and management. It presents optional production methods and IPM tactics that can reduce the risks of insect outbreaks, disease epidemics, resistance to pesticides and associated costs. The overall purpose of the guide is to increase the profitability of growing tomatoes and peppers while protecting human health and the environment. The guide was produced by county Extension faculty, extension specialists, crop consultants, tomato and pepper growers, and other pest management experts who assembled a complete set of IPM resources for planning pest management at the beginning of each crop. The guide assists growers in planning their crops with emphasis on pest prevention and management. It is designed to help growers transition toward more biologically intensive IPM. It will enable them to reduce production costs while minimizing risks to human health and the environment. This guide is available at no cost on line for easy access by growers.
Sargent, Steven A	Horticultural Sciences	Situation: Significant losses (5%- 25%) occur during harvest, handling and shipping of fresh fruits, vegetables and herbs that amount to millions of dollars in lost revenues annually. County faculty and professionals in the Florida fruit and vegetable industry need up-to-date postharvest information on a regular basis in order to maintain competitive advantage from products grown in other production areas. Success story: 1) Due to increasing shortages and costs of harvest labor, several Florida growers (tomato, strawberry) are looking into the potential of adopting mechanized harvest aids to reduce harvest costs and increase number of value-added crops.

		2) A large potato packer adopted machine vision for in-line defect sorting. This had led to lower grading costs, while increasing the through-put of his packing line. Outcome: The objective for this program is to assist Florida growers and county extension faculty by providing relevant, timely information related to postharvest issues facing our industry. Impact: Fruit and vegetable growers, packers and shippers have more options for growing and marketing crops with higher demand/value.
Morgan, Kelly T	Southwest Florida REC - Immokalee	Two extension efforts in vegetable nutrition best management (BMP) practices were continued in 2009. The first extension project was the C-139 basin phosphorus demonstration project. This project demonstrates the use of soil test phosphorus index in high pH soils. This project has illustrated the concept that current soil test indexes for phosphorus may not be effective for tomato. Data collected during this project will result in new soil test indexes for green beans. The second effort was in conjunction with the nitrogen BMPs demonstration project at grower field continued with determination of nitrogen, phosphorus and potassium movement and leaching with seepage irrigation. Results were discussed as a grower field day.
Vansickle, John J	Food and Resource Economics	I completed an assessment of the marketing system for fresh market tomatoes and provided information to growers and packers on packing and distribution of fresh market tomatoes. My program helped the industry in making a decision to keep the current shipping container in use rather than to change to a smaller shipping container.
Mizell, III, Russell F	North Florida REC - Quincy	Developed a trap cropping method to suppress stink bug pests in fruit, nuts, and vegetables irrespective of farm scale and farmer philosophy. Growers now have a IPM tactic other than insecticides to manage stink bugs. The developed technique was published in the Mother Earth News and used by the SARE program as an example of sustainable IPM methods. These publications are available in print and on the internet and will reach large numbers of clientele 24/7. This project was also presented with posters, materials and personal appearance at the Moultrie Agricultural Exposition and over 10000 people passed through the building over the 3 day event.
Olczyk, Teresa	Miami-Dade County - South	Several years of cooperation with a breeder from Syngenta Seeds working on the developing Bean Golden Mosaic Virus resistant cultivars of the snap beans resulted in six trials conducted by this agent and identification of several promising resistant bean breeding lines. BGMV is one of the devastating diseases of bush beans.
Osborne, Jason L	Miami-Dade County - South	60 tropical fruit growers participated in educational programs with emphasis on plant nutrition/fertilizer and irrigation mgt. and 40% reported they would imple-ment change in their production as a result. 3 CEU's were given for attendance.
Lamberts, Mary L	Miami-Dade County - South	16 growers and suppliers attended a workshop about problems associated with the use of endosulfan in Miami-Dade County. 11 answered a survey, with a Customer Satisfaction Index of 4.2 and a weighted knowledge gain index of 3.6. 10 of the 11 indicated that they would make at least 1 specific practice change as a result of attending this workshop.
Ehsani, Mohamma d R	Citrus REC - Lake Alfred	The first symposium on 'Application of Precision Agriculture for Fruits and Vegetables' was organize to gather all people interested in application of precision agriculture to fruits and vegetables in one location. The main goal of this symposium was to provide a forum for the exchange of ideas among researchers, academics, professionals and related industries on applying advanced technology and information-based management techniques for fruit and vegetable production.

		The specific objectives were: (1) to help researchers develop new technology ideas and network with other colleagues, and (2) to serve as an extension activity in order for growers to gain knowledge and updates on precision agriculture within the industry. Scientific sessions, poster sessions and a technical tour provided an opportunity to discuss and learn about cutting edge technologies in this area. The symposium was held from Jan. 6-9, 2008 in Orlando, Florida. Approximately 99 people participated with representation from 17 countries. The meeting was sponsored by the International Society for Horticultural Sciences, the International Society of Citriculture, the American Society of Agricultural and Biological Engineers and the Citrus Research and Education Foundation. The conference offered a wide range of topics covering almost all aspects of precision farming for fruit and vegetable production. There were 43 oral presentations and 19 poster presentations under the following main sessions: remote sensing, sensing and control systems, site-specific management, automation and robotics, as well as economic, quality and environmental issues.
Vallad, Gary E	Gulf Coast REC - Balm	The primary goals of the vegetable plant pathology program is to inform the vegetable industry about common and emerging disease problems, and the best means to manage disease through the integrated use of cultural, biological and chemical controls. For 2008, I was part of an interdisciplinary team of researchers with the UF/IFAS and with USDA-ARS in Salinas, California investigating a new disorder referred to as Tomato Purple Leaf Disorder (TPLD). TPLD was first observed in 2006 in isolated fields in Hillsborough and Manatee counties, but has since been found in numerous fields throughout both counties and in Dade and Suwannee counties. While the exact cause of TPLD remains unknown, results of field and greenhouse studies suggest a biological agent is involved. Information regarding TPLD was disseminated through extension and industry publications and industry meetings. Because of these efforts, the vegetable industry is better acquainted with the symptoms of TPLD and report new cases, which should help determine the extent of TPLD in Florida and perhaps help determine the cause.
Wright, Alan L	Everglades REC - Belle Glade	The most important impact was the result of field demonstration projects investigating the effectiveness of banding versus broadcasting phosphorus fertilizer for celery. Current IFAS recommendations call for broadcasting phosphorus on muck soils, but I found that banded application on either side of the celery row at one-half the broadcasted rate produced equivalent yields to the broadcasted rate. This result has important ramifications for celery growers as their phosphorus inputs and fertilizer costs could potentially be cut in half without yield reduction. Reasons for the failure of adoption and success of banding in the past could be related to soil subsidence and the recent increases in soil CaCO3 concentrations and pH, which tend to decrease phosphorus availability and sequester it into forms unavailable to plants, which in turn renders phosphorus placement an increasingly important management practice in the future not only for celery but for all crops.
Eubanks, Shepard D	Holmes County - Northwest	Agent worked with commercial watermelon and tomato growers emphasizing new varieties and doing demonstration plots with plasticulture, drip irrigation, and variety selection for tomato production in 2008. Watermelon production was outstanding this year as a result of educational efforts. The tomato demonstration cooperator saw a 70% increase in his production compared to cultivated, unmulched land. He was especially pleased with the results of organic amendments to reduce cost of fertilizing his tomato crop.
Treadwell, Danielle D	Horticultural Sciences	This year, I was the lead author on five, and co-author on four new extension fact sheets on sustainable vegetable production. These fact sheets are published in EDIS, and were visited by over 9,500 people in 2008. In addition, nine video segments were completed. These segments are complimentary to the EDIS

		publications and will be posted on the Virtual Field Day site. Improvements to the site are underway, and release of these segments is delayed. I am hopeful that they will be released soon, and impacts will be reported in 2009.
Schneider, Keith R	Food Science and Human Nutrition	My work with fruits and vegetables focuses mainly on safety issues, though I do get called on to lecture on topics such as genetically modified food products and quality. My primary role in the area of education is as a lecturer. I also conduct direct consultation with my cliental via phones call or conferences on quality and business issues. I would estimate I talk with 50 businesses each year on non-food safety related issues, including quality, marketing, and product development.
Dukes, Michael D	Agricultural and Biological Engineering	Initial research resulted 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 research plots 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.
Parsons, Lawrence R	Citrus REC - Lake Alfred	Soil moisture probes have recently been installed on over 250 acres of blueberries and 600 acres of strawberries in central Florida. This will allow growers to closely monitor the water status of their fields and save water & fertilizer.
Rice, Ronald W	Palm Beach County - South	On-going Thrips resistance management workshops for bell-pepper growers in Eastern Palm Beach County have convinced growers to adopt IPM practices that rely less on routine chemical control measures. The recent suspension of a new insecticide product, due to rising resistance in thrips, highlights the need for continued thrips-control education.
Olson, Stephen M	North Florida REC - Quincy	I planned and was primary contact person for a multi-state in-service training on alternative fumigants. States included FL, GA, AL, SC and NC. I received a USDA grant to fund this program. Involved 46 agents and specialists from the states. Program provided the latest information on alternative fumigant situation.
Sui, Dezhi David	Palm Beach County - South	Success Story: 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 (Tony Patel, Alice Alexander, and Sue Cappella, personal communications). 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.

Drew, David A	Levy County - Northeast	46 watermelon producers more efficiently managed water and fertilizer through petiole sap testing services and training and irrigation management training. Producers also gained knowledge in IPM and RUP use through short courses and field consultation
Adcock, Collin W	Washington County - Northwest	* Overall leadership responsibilities along with program evaluations by the use of surveys to determine the effectiveness of all programs and the knowledge gained by participants and in addition any practice changes will be documented. * Provided 14 vegetable producers throughout Northwest Florida and South Alabama with a place to market their produce locally (Downtown Chipley, FL). * Provided Washington County with a local farmers market to buy and sell fresh local produce for the last two years. * Provided a place for Washington County Residents to spend WIC (women, Infants, and Children's) Checks and a place for growers to accept these checks. * Cucurbit growers participated in a Cucurbit/Watermelon meeting/seminar in Washington County with the Cooperation of the Jackson County Extension Office. Where specialist from all around the state presented and discussed current cucurbit issues. * With the leadership of the Washington and Holmes County CED's, helped in a pesticide training for Washington and Holmes Counties. * Provided seedless watermelon varieties to a local watermelon grower to perform a watermelon variety trial. In which some of the watermelons produced were later donated to the Panhandle Watermelon Festival with is organized by the Washington County Extension Office. * Through educational programs, phone calls, office consultations, field visits. Newsletters, email and letter correspondence, there were 1,220 contacts made with commercial horticulture professionals (fruit & vegetable producers along with landscape professionals and nurserymen) providing them with educational information.
Powell, Eddie	Walton County - Northwest	The garden in the area were looking for ways to produce more fruit. Use teaching them a great management plan such as fertilizing, pruning and spraying they have increase their yield.
Price, James F	Gulf Coast REC - Balm	Florida strawberry farmers have reduced their use of old, environmentally harsh, and hazardous insecticides and miticides by more than 20% in the past 5 years in favor of more benign, modernesticides.
Gillett-Kaufman, Jennifer L	Entomology and Nematology	Growers in Florida currently use a variety of IPM practices and many have expressed their willingness to incorporate new tactics when provided with sufficient information. Greater adoption of prevention-oriented IPM practices will increase opportunities for growers to widen their options for managing pests and diseases while maintaining economic viability and reducing risks to human health and the environment. Growers, researchers, Extension agents, and crop consultants individually have vast experience in many of the specific components of effective IPM programs but usually lack a framework for overall crop planning that includes up-front pest management decisions. The primary goal of producing the Florida Tomato and Pepper Growers IPM Guide was to provide growers the decision-making information they need to adopt alternative pest management systems that focus on biologically based, multi-tactic IPM strategies. We found that web delivery was an efficient method of delivery for this quide. In 2008, we recorded over 45,000 viewings of pages and chapters from the web-version of the guide. Since this guide was produced for specific commodities, four hundred CD-ROMs with pdfs of the guide were made available for growers at grower meetings and from extension faculty around Florida in 2008. We are also making the material in the guide available on EDIS. We hope this will increase the materials' availability and visibility. If grant funding is available we plan on updating and redistributing the guide in 2009.

Hochmuth, Robert C	North Florida REC-Suwannee	Outcome Surveys were conducted after several educational programs, with the following results: Fall Alternative Enterprise Workshops (this agent member of overall planning and implementation team): As a result of presentations on microgreens, four farmers are now commercially producing microgreens 22 producers attended sessions with CEUs to maintain their Restricted Use Pesticide license 15 clients attended a workshop on complying with FDACS-Division of Food Safety requirements for establishing a certified food processing kitchen A post program email survey sent to participants(10 out of 22 responded) indicated: 100% of participants were more knowledgeable after attending program 90% of respondents stated that they had a better understanding of commitment necessary to start a new enterprise, the appropriate production techniques and systems needed, and marketing strategies needed to be successful 80% said they understood the financial costs and opportunities for the new enterprises they are considering 80% of respondents indicated that they were satisfied with the program content Tri-County Pesticide Update (vegetable portion presented by this agent) 32% of the attendees were vegetable producers. 26 of the 32% indicated they plan to make changes on their farm as a result of this agent's presentation. Seed Selection & Storage (this agent primary presenter at this workshop) 60% increase in knowledge 70% indicated that they would not use yield data only to select varieties 90% indicated they would use UF information to select appropriate varieties 100% would select disease resistant varieties when possible 50% would use germination tests to determine seed viability 80% felt fairly comfortable at disease diagnosis on transplants Alternative Livestock Production (this agent is one of the team members of small farms working group) 25% of folks surveyed indicated their knowledge was increased 75% indicted they would now use pasture rotation and hay sampling to improve production 50% indicated they are considering starting a pastured poultry operation Combined Drip Irrigation Program Activities A variety of activities were used to deliver drip irrigation information (field days, written documents, virtual tours, and farm visits). Face-to-face contacts with 220 farmers resulted in increased knowledge of mostly new or prospective farmers throughout the Suwannee Valley area. The development of deliverables such as an EDIS document on drip irrigation for small farmers, two virtual field day modules on building a drip irrigation system and managing the system, and a

		teaching toolbox of drip system parts will all provide long term teaching abilities for farmers in the area of drip irrigation. Working directly with agents on the on-farm demonstrations has increased the overall capacity of faculty in the district to become local experts on drip irrigation.
Migliaccio, Kati W	Tropical REC - Homestead	Program Description 2008 This program is geared toward agricultural operations, county and state extension faculty, research faculty, administrators of environmental quality, county government, producers, and workers/laborers. The intent is to increase agricultural sustainability while protection water resources by accomplishing the following objectives in tropical fruit: 1)To increase knowledge of using evapotranspiration, soil moisture, or other water saving irrigation techniques by 50% among workshop participants as determined by pre and post evaluations. 2) Adoption of evapotranspiration, soil moisture, or other water saving irrigation techniques by growers. Success story A grove manager attended an extension event where I gave a presentation on efficient irrigation in fruit crops of Miami-Dade County. The information I presented was based on the latest research which conflicted with his current management practices. I conducted a thorough review of the information he had and provided him with new improved information for use in managing irrigation systems. Outcome Research and demonstration sites have been established for carambola, papaya, and avocado. Results indicate that smarter irrigation technologies as compared to traditional irrigation practices save 55 (evapotranspiration based) to 90% (soil moisture based) of water applied. For extension events that were conducted, there was a greater than 50% increase in knowledge as determine by and pre and post test. Impact Implementation of technology would potentially save approximately 3,731 m3/d (~1 MGD) in Miami Dade County if implemented. This would save water that can be used to meet the growing water demand and hence save money that might be invested on alternative water supplies (such as desalinization plants). In addition, less irrigation corresponds to less pumping of water and therefore fuel savings. Thus, this practice is also energy efficient.
England, Gary K	Sumter County - Central	4. An end of program survey returned by 19 of the 38 attendees at the 2008 Winter Weather School indicated the following results: - Increased knowledge about the Pacific Climate Phase Forecast was indicated by 95% of the responders. - Knowledge gained will allow 89% of the responders to do a better job of preparing their cold protection system for “freeze season. - Knowledge gained by 89% of the responders indicated that they learned new information about devices that will assist them to monitor weather conditions during freeze periods. - With the knowledge gained that this program, 89% of the responders indicate they will be able to reduce the amount of water they utilize for freeze protection.
Muralles, Lester	Gadsden County - Northwest	This agent in collaboration with other agents and specialist in the region provided the needed and necessary information to farmers in various forms such as workshops, handouts, leaflets, brochures and booklets by mailing, during office

		walk-in or farm visits. The exit surveys indicated a 96% (90) knowledge gain, 100% (93) learnt something new, and 99% (92) indicated that they plan to adopt at least one practice such as appropriate vegetable varieties, citrus varieties, organic production methods and integrated pest management.
Donovan, Thomas F	St. Johns County - Central	25 Commercial Vegetable producers increased their knowledge of at least 2 Water Quality Best Management Practices for Agriculture Row Crops.
Swisher, Marilyn E	Family, Youth and Community Sciences	We developed a training program for Extension professionals: The National Organic Standards, What Local Service Providers Need to Know. The development of the training materials was funded through the Southern SARE Sustainable Agriculture Research and Education Program. We have now delivered this program in five states and territories. Pre- and post-tests, significant at $p<0.01$, show a 22% gain in knowledge.
Williamson, Jeffrey G	Horticultural Sciences	Impact Statement (commercial blueberry production) - According to the USDA National Agricultural Statistics Service (2007), during the period from 2003 to 2007, commercial blueberry acreage in Florida has increased by 37%, total production has increased by 123%, and the value of the industry has increased by 114%. Production efficiency measured in berry yield/acre has increased by 63% during the same period. The Florida blueberry extension program works closely with the Florida Blueberry Growers Association and holds two statewide meetings each year that are attended by the majority of growers in the state (attendance between 150 and 200 people). Information on new cultivars, pest and disease management and other topics are routinely presented and discussed. The early-ripening cultivars from the University of Florida and widespread use of Dormex has ensured an early season crop that receives the highest prices per pound of any blueberry growing region in the U.S. With average prices of between $4.00 and $5.50/lb for the past 8 years.
McAvoy, Eugene J	Hendry County - South	In 2003, this agent responded to a request for on-farm consultation to diagnose a problem in a watermelon field in the Devils Garden area Hendry County that was exhibiting a rapid die off. Recognizing that this was possibly a new problem, this agent called in UF/IFAS Pathologists to assist with the diagnosis. Given the name watermelon vine decline based on the symptoms - rapid and mysterious decline in nearly mature vines -the cause of the disorder proved elusive. Watermelon vine decline is particularly insidious in that it strikes as the crop approaches harvest or soon after first harvest. Disease progress is very rapid. Symptoms may develop and affect more than 80% within a matter of a week to 10 days. Disease incidence (dead plants) is sometimes near 100% and although some of the declined vines produce new healthy-looking shoots, these no longer produce viable fruit. Symptoms include a slight internal yellowing of stem tissue in the crown area, wilting of the vines, scorched and brown leaves, defoliation, and rapid mature vine collapse. Frequently, fruit are observed with greasy necrosis (brown) on the interior portion of the rind that rendered the fruit non-marketable. Fruit quality is greatly reduced. Since 2003 it has been widely reported in all major watermelon production areas of South Florida Bob Morrissey, executive director of the Plant City, Florida-based National Watermelon Association, says vine decline has been so devastating that some farmers have bailed out of farming altogether noting. “It has cost the Florida growers over $60 million in the last four years,”

		In a classic extension/research success story, a combined team composed of Scott Adkins, Benny Bruton and Chandrasekar Kousik of the U.S. Department of Agriculture, Carlye Baker of the Florida Department of Agriculture and Consumer Services, UF Nematology and Entomology experts Phil Stansly and Susan Webb, UF Plant Pathologist Pam Roberts, UF researchers Rosa Muchovej and Diann Achor and UF Extension agents Phyllis Gilreath, Gene McAvoy and Alicia Whidden, was assembled and in 2006 were able to determine that the new disease was caused by a whitefly vectored virus - squash vein yellowing virus and advise growers on control strategies to reduce the devastating losses. This successful outcome will save watermelon growers in South Florida millions of dollars in lost production. Acting in IFAS recommendations, incidence of vine decline was approximately 10% in 2007, down from 50 -70% of the crop affected in past years. In response to industry requests for assistance, this agent worked with a team of agents, specialists, and industry personal to develop Recommendations for Management of Whiteflies, Begomovirus, and Insecticide Resistance for Florida Vegetable Production. These have been widely adopted by South Florida Tomato Producers. Educational efforts are on-going. In 2008 the vine decline team was recognized by UF/IFAS and awarded the Jim App Team Award for its efforts.
Mullins, Daniel E	Santa Rosa County - Northwest	Stink bugs are difficult to control, major pests of fresh market vegetables in Santa Rosa County. As an IPM alternative, stink bug trap crops were installed near one tomato field in order to demonstrate this technique. More trap crops will be planted in the future as producers see the value.
Peres, Natalia A	Gulf Coast REC - Balm	On strawberries, we've found that C. fragariae causes disease on hosts other than strawberry which indicates that this pathogen could conceivably spread from strawberry to ornamental plants such as date palm, cyclamen, and perhaps others. Fungicides such as Captevate, Thiram and Pristine have proven effective for control of Gray mold (caused by Botrytis cinerea) and leak diseases, but most biorational fungicides did not provide good control. Fungicides such as Abound, Cabrio, Switch and Thiram controlled Colletotrichum crown rot (caused by Colletotrichum gloeosporioides) effectively. Since some products are effective when applied after infection, growers have more flexibility and can make applications after weather events favoring disease development. Fungicides such as Quintec were effective for control of powdery mildew (caused by Sphaerotheca macularis) on strawberry.
Cuda, James P	Entomology and Nematology	The "Beneficial Arthropods: Predators" CD described under Agronomic Row Crops also applies to this program area.
Halman, Robert D	Collier County - South Central	*Internally, 100% of Master Gardener volunteers that assisted in manning the exhibit booth indicated they had developed increased customer service techniques and indicated a increased confidence in horticultural consultation techniques and -98 % indicated they had encountered and learned about new gardening issues via work at the farmer’s market booth. *Through on-site comments, 95 % of exhibit visitors have indicated an enhanced appreciation for the resources available at the UF/IFAS Extension office
Snodgrass, Crystal A	Manatee County - South Central	In response to a written survey following a food safety program 75% of the program attendees reported increased knowledge about the salmonella outbreak and committed to improving food safety programs.

Warren, Mark W	Flagler County - Central	Flagler County Extension Service organized and hosted a Cabbage Producers Short Course. The afternoon program was well attended with thirty-two participants from surrounding counties. Presenters included five of UF's top extension specialists and vegetable researchers covering a broad range of subjects ranging from nutrient management to integrated weed, insect, and disease management options. Producers holding "Private Applicator" licenses received continuing education units (CEUs) to apply towards maintaining their pesticide licenses and a panel discussion at the end of the program provided producers with an opportunity to talk one on one with experts about specific questions and growing concerns. This industry has significant economic impacts across the Tri-County Agricultural Area with gross sales for the 05-06 production year approaching 11.5 million dollars. Follow-up discussions with producers indicated that they appreciated the program and hoped it would continue to be offered in future years.
Tyson, Richard V	Seminole County - Central	Four central Florida counties (Seminole, Orange, Lake, and Osceola) have 3,594 farms on 1 million acres with annual sales of $505 million. Many farms use restricted use pesticides to produce crops, and this requires pesticide license certification. Extension agents in these counties formed a pesticide applicator training group with the following educational objectives: 1) focus efforts on license categories with high public demand by agriculture and green industry clientele 2) increase the number and quality of educational programs offered and 3) improve the pesticide exam passing percentage of participants. Program activities and teaching methods over the last 3 years included developing presentations, fact sheets, label exercises and calibration problems to target 4 license and 2 certification categories. Twenty three training classes were conducted across the region with 630 individuals taking exams after classes. Six recertification CEU Days were attended by 677 individuals. Clients taking license exams after class were compared to clients taking exams without training by appointment. Results indicate an increased average passing percentage of 21 %. Extension agents can significantly impact the educational and economic benefits to clientele, even with limited program resources, by reaching across county lines in a regional team approach. This team effort was awarded the Florida Association of County Agricultural Agents Excellence in Crop Production Award for 2008.
Hylton, Trevor A	FAMU	In my routine office visits I have been told by several clients that the simple greenhouse construction that I taught them allowed them to build their own and thus protected their plants against freezing conditions
Schuster, David J	Gulf Coast REC - Balm	Monitoring of field populations of the silverleaf whitefly for susceptibility to insecticides is an essential part of a resistance management program and will help ensure the continued availability and sustainability of these indispensable management tools for whitefly control. Educational programs indicating declining susceptibility of the whitefly to insecticides and emphasizing resistance management recommendations have resulted in 75% of participants gaining knowledge and acceptance of recommendations.
Whidden, Alicia J	Hillsborough County - South Central	Agent has been working with several of the Hispanic strawberry growers to get them to better understand the correct amounts of fertilizer to use and the correct method to use for successful fertigation of their berry crop so as to not have problems caused by excess salts or not having the plants receive enough nutrients. Two growers have seen a marked improvement from last season and feel they will be better able to control their fertilizer costs as well as not have salt problems and loss of berries from this problem this season. This is having a positive economic impact on their farming operations.

Snodgrass, Crystal A	Manatee County - South Central	Success Story: 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.
Hochmuth, Robert C	North Florida REC-Suwannee	Success Stories 1) 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. In preparation for the 2008 season, this agent coordinated efforts with Extension Pathologist, and Suwannee County Extension agent. Efforts included promoting early scouting, selecting proper fungicides in rotation, and encouraging quick reactions after detection. 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. In addition, early scouting detected spider mites on one farm and magnesium deficiency on a second. 2) UF/IFAS county extension agents and specialists have been working with Suwannee Valley's vegetable growers who use plastic mulch and drip irrigation to refine their management of the technology since it was introduced to the region in the late 1980s. The emphasis of the educational program in the past 5-10 years has been to improve efficiency of water and nutrient management. The educational approach was to first demonstrate the new technology at the Center via field days and workshops, then follow-up by demonstrating that technology on grower's fields throughout the region. Educational efforts have included: on-farm demonstrations using soil moisture sensors, Florida Drip Irrigation Schools, plant sap measurements, mobile blue dye injection to show growers the movement of water in the soil profile. The most recent and perhaps most popular demonstration that was taken to 20 area farms was the use of blue dye injected into the irrigation system to see how quickly the water moves downward in the soil in their field. The blue dye is used to be able to actually visualize the wetting pattern under the drop tape. After injection of the blue dye, growers followed their normal irrigation schedules for one week and then a cross section of the soil profile under the mulch was dug to measure how far the water and nutrients moved. The growers showed great interest in using new technology such as moisture sensors and Cardy meters, and seeing the movement of dye on the "digging" visits. It was common for growers to make immediate changes in irrigation schedules, especially irrigation event durations early in the season based on what they observed. The greatest challenge in managing the leaching from over irrigation occurred in the early part of the season, weeks 1-5 after planting.

		The combination of these educational programs has resulted in: *better long term understanding of water and nutrient movement in a plasticulture system *reduced leaching of fertilizer *reduced total fertilizer used saving money *more efficient irrigation delivery reducing pumping fuel costs, reducing water withdrawal, and reducing nutrient leaching *adoption of long term best management practices (BMPs) This program was recently presented at the American Society for Plasticulture in San Antonio, Texas and received the Best Paper Award.
Lamberts, Mary L	Miami-Dade County – So.	151 growers and suppliers attended 6 workshops or field days. 87 earned from 1.0 to 2.0 CEUs in either Private, Ag Row Crop, Demonstration-Research or Core.
Muralles, Lester	Gadsden County - Northwest	During the 2008 the Gretna Community Vegetable Garden planned, organized and implemented the garden activities. The produce was donated to the handicap, the elderly in the community and garden members. The donations received from the community to the gardening group were well utilized in land preparation, compost was donated and incorporated, the irrigation equipment was installed and water provided by the city of Gretna. A work shed was built by a volunteer group from Tallahassee, two work benches were donated and a portable potty was donated by the city of Gretna. The produce from the garden donated in 2008 amounted to over $5,000.00. Members of the Community Garden learnt new organic production techniques and implemented them at their home gardens. Through this Community Group we can see the level of dedication and effort put in by the community members to help their community.
McAvoy, Eugene J	Hendry County - South	The South Florida Vegetable Pest and Disease Hotline, which began in 1998 as the Southwest Florida Vegetable Pest and Disease Hotline is now entering its tenth year of publication and has emerged as the premier vegetable pest and disease newsletter in Florida. The 18 -20 page hotline is produced bi-weekly during the South Florida vegetable season from August to June and now reports on the occurrence of vegetable insect and disease pests on over 120,000 acres of vegetables in South Florida. The hotline is sent directly by e-mail, fax and surface mail to over 1400 subscribers and is also reproduced and distributed by other extension agents and many other companies and businesses in Florida and throughout the country. The hotline has been critically acclaimed by the vegetable industry and is recognized as the definitive source of vegetable pest and disease information for south Florida. The hotline receives strong industry support and has received more than $60,000 in contributions from sponsors since its inception. The hotline draws on thirty two collaborators from the vegetable industry to collect up to date information on the incidence of pests and diseases which is collated and provided to users every two weeks during the south Florida vegetable growing season. Growers call it a useful tool while industry users indicate it helps keep them on top of the overall pest and disease situation. In addition to real time situation reports the hotline provides users with research control tips from UF/IFAS and elsewhere and up to date information on pesticide label changes and regulations. Of growers surveyed 94.3% found the hotline to be a useful tool and 91.6% indicated that they used the information in the hotline to help formulate their pest management strategy.

Vallad, Gary E	Gulf Coast REC - Balm	The vegetable industry was provided an update on chemical and biological controls for several foliar diseases of tomato, as well as recommendations for disease management and pesticide rotation. The continued screening of new chemical and biological controls for plant diseases is necessary, since periodic label revisions may change or prohibit the use of certain staple pesticide products, and the disease management strategies used by clientele are constantly evolving to achieve the most efficient and effective level of control with minimum economic and environmental impact.
Lamberts, Mary L	Miami-Dade County - South	Two greenhouse / soilless culture growers have been in regular contact, mostly by phone. They have had a lot of questions about the different steps involved in growing vegetables, but are starting to gain confidence. One has begun to harvest. The other is growing specialized transplants and the plants are not yet ready for sale.
Snodgrass, Crystal A	Manatee County - South Central	Through personal contact with farm tour participants 90% reported increasing their knowledge of commercial tomato production.
Hochmuth, Robert C	North Florida REC-Suwannee	Impacts Teaching nutrient management on drip Irrigated farms has not only impacted growers in North Florida, but also in other states as well. Several activities were conducted in 2008 to increase adoption of BMPs related to nutrient and water management. In cooperation with Echols County, GA, Extension agent; this agent and BMP Implementation Team Leader, conducted five (5) blue dye demonstration in south Georgia farms. This activity trained Georgia agent in the process so he could conduct future demonstrations on his own. As a result of discussions with Vegetable specialist and this agent at the American Society of Plasticulture Congress; irrigation Specialist at the University of Delaware, planned blue dye demonstrations on farms in Delaware. Refinement of petiole sap testing, weekly fertigation adjustments, and blue dye demonstrations impacted several farms, including: Farm #1 -Madison County, development of seasonal fertigation plan using least expensive nutrient sources Lafayette County agent, this agent put together sap testing kit for Chris Bradford County agent, several successes conducting his own program as a result of training in previous year Facilitated adoption of petiole sap testing by south Florida potato grower Gilchrist County farmer and BMP Team, initiated sap testing and blue dye demo transitioning to BMP team Suwannee County farmer growing 200 acres of watermelon, as a result of previous year training, full adoption of sap testing in 2008
Hochmuth, Robert C	North Florida REC-Suwannee	Impacts Improved management of pests on farms 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

		their farm, that disease being late blight, a very serious disease. Extension agents and specialists all played key roles in this detection and ongoing management plan for the 2008-09 season. These farms now are now more likely to sustain their alternative enterprises (greenhouse specialty crops) due to this problem-solving educational effort. Five growers adopted IPM practices such as insect screening, reflective mulch, sanitation, etc. Development, coordination, and initiation of new virtual field day module and new EDIS fact sheet on Pest Exclusion for Greenhouse Vegetables Watermelon growers reduced losses to diseases such as powdery mildew and gummy stem blight saving an estimated $60,000 in losses from previous year. Increased compliance by producers As a result of combined efforts of agents and specialists in BMP education, over 100 growers in the region have signed an NOI and have implemented several BMPs in the past two years. This agent's effort has especially been important to farmers with drip irrigated crops. Certified pesticide applicator CEUs and Certified Crop Advisor CEUs were offered and administered at several programs conducted by the Suwannee Valley team. This agent participated as a presenter in six sessions where growers were able to earn CEUs. This agent hosted a group of FDA, DACS, and UF/IFAS food safety specialists on three days of intensive farm tours in Suwannee County. This tour was coordinated by UF/IFAS. The purpose of the farm tours was to gather information by the regulators to learn about developing sound GAPs on both field and greenhouse operations. This activity will lead to a series of further educational programs to develop GAPs on their farm.