The Age of Florida Citrus Industry Members and their Preferred Communication Methods

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This study was to evaluate the relationship between age and preferred form of communication among Florida citrus industry members to improve communication between the industry and cooperative extension. A thirteen question survey was distributed at five industry meetings and via www.qualtrics.com during March and April 2012. A total of 237 surveys were collected and answers to all questions except one were given a categorical value. An individual’s age was collected as a continuous variable and then grouped into categorical variables. A frequency analysis was performed on all data. The average age of participants was 55 and over 50% of the respondents were growers or grove managers. For all age categories, greater than 70% used a PC computer. Over 50% of each age group used email on a daily basis. Over 50% of each age group used email on a daily basis. All age categories preferred email over regular mail except for the 80-89 age group. The older the participant, the less active they were on Facebook. Twitter and LinkedIn were not used by the majority of the citrus industry personnel, but all age groups would support the use of social media for communication from cooperative extension. The majority of each age group would like to receive text messages for reminders. In most cases, age was not a primary factor. The two most interesting findings were the support of social media, although they do not use it frequently, and text messaging. Text messaging should be considered by cooperative extension for future planning. Both extension and industry personnel must learn to communicate in an effective manner for both parties.

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Assisting Resource-Limited Farmworkers Improve Their Quality of Life through Sustainable Agriculture

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Many farmworkers have created permanent ties in our communities and express the desire to have farms of their own one day. Unfortunately, few farmworkers have the financial means or technical expertise to realize this goal. Working with the City of Fellsmere and the local office of the Farmworkers Association of Florida (FWAF), the Indian River County Extension office is helping to make this goal a reality.

Training modules were developed in Spanish to teach agricultural production with an emphasis on sustainability. Classes were offered on a weekly basis at the local FWAF office and consisted of topics including soil characteristics, IPM, composting, green manures and hygiene. A Master Gardener volunteer attended the classes and was able to reinforce transfer of technology by working with the participants in their garden plots.

Group discussions led to the development of another series of classes that included small-farm business planning, marketing and competition and management of funds. From the first group of 20 participants (representing 20 different families) more than 250 people benefited from the harvests of fresh fruits and vegetables. Recently, a larger plot (1/4 acre) was donated by the city and class graduates interested in growing for a market venue are in the planning stages of that project.

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Beekeeping in the Panhandle: A Diversified Team Effort to Educate New and Existing Beekeepers across County and State Lines

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The Beekeeping in the Panhandle course consisted of eight, two hour sessions, held over a three month period via internet enabled interactive videoconference equipment.

**Objectives:** One hundred small-farm owners will attend an educational beekeeping program emphasizing biology, equipment, pest and disease management, pollination ecology, hive products, and Africanized bees. Seventy-five percent will increase their knowledge of bee biology and best management practices. Seventy-five individuals will attend a Beekeeping Tradeshow and Workshop and participate in hands-on activities related to equipment assembly and hive management. Eighty percent will increase their knowledge and will have greater confidence in establishing their own hives.

**Methods:** A diverse group of specialists from the beekeeping industry, UF/IFAS Extension, and the Florida Department of Agriculture & Consumer Services designed and taught the eight classes. A 178 page notebook containing beekeeping Extension publications was provided to each participant. The Saturday Tradeshow and Workshop provided hands-on activities.

**Results:** A total of 255 registered clients participated in 15 Florida and Alabama counties. Initially, only 17% (23 of 142) rated their knowledge of bees as a good deal to very knowledgeable but by the end of the course, 91% (126 of 138) rated their knowledge of bees and beekeeping as a good deal to very knowledgeable, reflecting a 74% knowledge gain. Of 195 respondents, 98% reported a better understanding of bee biology and behavior, 94% have greater confidence in establishing or expanding their own hives, 96% have a greater understanding about the importance of pollination to our food supply, and 97% have a greater understanding of Beekeeping best management practices. Ninety-eight percent (191/194) of participants felt that they had a better understanding of Africanized bees and how to minimize their threat.
Given the low water holding capacity of Florida’s coarse textured soils the vegetable growers using drip irrigation oftentimes over-irrigate to maintain adequate moisture levels within the crop root zone. N-P-K fertilizers are highly water soluble, and as growers mismanage the irrigation water application, they generally tend to over-fertigate to compensate for the loss of nutrients from the plant root zone. These practices of over irrigating/fertigating may not only increase leaching of nutrients into the ground water, but also increase crop production costs. Therefore, to demonstrate visually the wetting pattern of drip irrigation water in Florida’s sandy soils, soluble blue dye (Terramark SPI High Concentrate, ProSource One, Memphis, TN) was injected into the drip tube of plastic mulched beds at 1:49 (v:v) dye-water dilution rate for approximately 10-minutes. The dye injection was done with a portable battery operated pump prior to an irrigation cycle. At the end of the irrigation cycle, transverse and longitudinal sections of the mulched bed were carefully dug with a shovel. Each hole was dug deep enough to see the bottom of the dye. The blue dye patterns in the soil definitively demonstrate water movement in plastic mulched beds. The depth and width of the wetted front varies with soil type, length of irrigation and flow rate. Several demonstrations presented throughout the Suwannee Valley area have shown that vegetable growers are more likely to try and adopt Best Management Practices when they actively participate in the educational process than when production changes are mandated through legislation.
Capitalizing On The Resources Of The Small Farm Academy

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Resources for demonstrations and interactive learning activities are integral in reaching a higher level of learning and practice adoption by clientele. The Small Farms Academy specializes in interactive learning opportunities for small farmers.

Purpose: The NE District Green Team goal is to capitalize on the existing resources for hands on training opportunities for Master Gardeners and homeowners.

Scope: Workshops with demonstrations and experiential learning activities include; Pruning the Orchard, Hydroponic Vegetable Production and Integrated Pest Management (IPM).

Methods: Curriculum includes PowerPoint presentations, demonstrations and interactive activities. SVAEC provides additional support staff and the Small Farms Academy Coordinator handles administrative tasks.

Results: Pruning workshops reached 150 people over three years and Hydroponic information was extended to over 200 Master Gardeners and homeowners. The IPM workshop was limited to 75 people.

Conclusions: Evaluations indicate 98% of people attending pruning workshops have implemented IFAS recommendations and 96% are using IPM practices. Several hydroponic workshop attendees have expanded their hydroponic systems beyond the starter floating garden obtained at the workshop. Clientele reported this is a preferred method of education. Agents are able to deliver high quality programs with less costs to the county budget and a wider range of target audiences are benefiting from the infrastructure and educational opportunities developed by the Small Farms Academy.

Recommendations: It is recommended that Horticulture Agents take advantage of resources and field days developed for agriculture clientele. With slight modification in program delivery, resources can be extended to a wide range of audiences.

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Establishing an Urban Farmers Market

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Purpose: Establishing a Farmers Market in a farming community where no market existed has been an incentive to assist local farmers in increasing their personal incomes by marketing their locally grown produce from a market location within the community. Additionally, the market serves to provide residents of the community who live in an area of the community that has been identified as a local food desert a means to acquire fresh fruits and vegetables at a reasonable cost.

Methods: Local County Extension Staff teamed with an Advisory Committee in a discussion of Farmers Markets. A local non profit organization with space for a potential market was contacted; they agreed to provide the space needed and oversee the operation of the market. The units of local government provided some necessary amenities to the market site. The local Chamber of Commerce provided resources needed to publicize the market.

Results: The Ribbon Cutting for the Farmers Market was held on May 3, 2012, this very young market is in the process of establishing itself in the community with produce and citrus vendors. Fresh fruits and vegetables can become the order of the week with the market being open on a weekly basis.

Conclusion: In the short time that the market has been open, several small farmers have been at the market on a weekly basis. Community residents have stopped at the market to make purchases with several returning as repeat customers. It is believed that local farmers marketing produce at the local market on a weekly basis can add an additional three to five thousand dollars to their household income annually. As the market matures, it is expected that grant funding will be sought to improve the infrastructure where vendors will be sheltered from the elements.

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Evaluation of Several Lettuce (*Lactuca sativa* L.) Cultivars Grown Inside a Greenhouse Using Nutrient Film Technique

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**Background:** Small greenhouse and outdoor hydroponic growers in Florida have recently shown an increased interest in growing a wide variety of leafy green vegetables for local direct-to-consumer sales. Very few greenhouse lettuce (*Lactuca sativa* L.) cultivar trials have been conducted in Florida to provide current cultivar recommendations.

**Purpose and Scope:** This trial was conducted to provide up to date information regarding lettuce cultivar selection to small greenhouse growers throughout Florida.

**Methods:** A randomized complete block design trial was conducted three times at the Suwannee Valley Agricultural Extension Center in Live Oak Florida during the winter and spring of 2012. The trial was conducted using the nutrient film technique in channels. Fifteen lettuce cultivars of various types and colors were evaluated for yield, susceptibility to tip burn, and overall quality. Lettuce types included romaine, butterhead, bibb, and lollo loose leaf.

**Results:** Several cultivars performed well in yield and quality during the first trial during January when temperatures were moderate. However, during the subsequent two trials, temperatures were unusually high and several cultivars showed susceptibility to leaf tip burn, a common calcium related disorder in lettuces grown in warm greenhouses.

**Conclusions:** The trial results showed the best adapted varieties for Florida greenhouse production using nutrient film technique culture and also showed varieties that are not appropriate in Florida due to size, quality or leaf tip burn concerns.

**Recommendations:** Continued effort needs to be made to provide specialized research based information to small greenhouse producers in Florida.

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FAMU New and Beginning Farmer Training Program

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In the first two years, the FAMU New and Beginning Farmers Training Program reached over 4,000 youth and new and beginning farmers in north Florida through 134 training sessions. The program incorporates the basic business development model and applies it to agriculture operations. The web-based training program provides self-directed training and assistance based on individual goals, skills and progress in starting a farm operation. The Young Farmer Entrepreneur Incubator, targeting new and beginning farmers under the age of 25, is an intensive, hands-on approach to establish core business plans and practices that aid startup of successful agricultural business ventures. The Beginning Farmer Demonstration Training Site provides production, marketing and business management training activities to enable participants to obtain “real-world, hands-on experiences. The program’s long-term outcomes include development of sustainable educational networks, adoption of best practice strategies for farm entry, and increased number of target audience starting and managing agricultural enterprises.

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Field Observations of Machine-Harvest Inefficiencies and Suggested Corrective Measures for a Commercial ‘Noble’ Muscadine Grape Block Trained to a Single Cordon

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Purpose: For two growing seasons, 2010 and 2011, several small producers sharing the same mechanical harvester had reported difficulty harvesting ‘Noble’ Muscadine grape berries. Field observation during the 2011 harvest of a ‘Noble’ Muscadine by a model 2720 Braud® harvester showed visual differences in berry harvest depending whether harvesting in the direction of the single-cordon or against it.

Methods: Paired-row replicated hand-harvests with and against-cordon harvests were systematically sampled on a diagonal field transect at progressive, 4-row intervals for a total of four replications. The hand-harvested length was the entire 20-foot cordon for each sampled pair.

Results: Mean berry weight left in the vineyard was 2,158 pounds per acre when harvested in the direction of the cordon compared to 674 pounds per acre when harvested against the direction of the cordon (F-test, P = 0.001).

Conclusions: Field recommendation was to harvest every other row against the direction of the single cordon immediately. The additional 1,484 pounds of harvestable berries per acre justified the second pass by the mechanical harvester. Fruiting wood also appeared to have been aggressively pruned, placing the fruiting nodes close to the cordon. A recommendation was to not prune so closely to the cordon, so berries would be further from the cordon and more harvestable. Harvest direction efficiencies may need to be tested multiple seasons with this harvester before recommending training cordons in alternating directions for future plantings of ‘Noble’ vineyards.
Free Fuel for Remote Locations: Construction of a Biodigester

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Purpose: This poster will visually demonstrate how to construct a low cost biodigester. Small quantities of methane gas are produced for family cooking, water heating or for other needs.

Scope: Authors participated in a professional study tour of Costa Rica in March, 2012. The technology has been perfected by EARTH University in Guacimo.

Methods: 7 UF Extension faculty plus three other US HS students helped local residents through the 3-hour construction process. A large poly bag holds manure and vegetable waste. It is attached to a poly-pipe that directs anaerobically-produced methane back into a kitchen.

Results: These methods have been used by EARTH students to install hundreds of small sustainable biodigester in Costa Rica. Residents eliminate organic wastes, prevent runoff, generate compost for enriching soil and receive no-cost cooking fuel not otherwise obtainable.

Conclusions: This low-input technology can reduce animal waste and produce fuel which can be utilized in remote farm locations in Florida and round the globe.

Recommendations: This technology will require examination of local laws if used in most Florida communities, but can be used by persons in developing countries.

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Hands-on Training through the University of Florida Living Extension IPM Field Laboratory

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A 330-acre farm at the Suwannee Valley Agricultural Extension Center was developed into a “Living Extension IPM Field Laboratory” to provide a hands-on, whole farm approach to teaching Integrated Pest Management (IPM).

**Purpose:** To improve the adoption of IPM practices on farms/landscapes with variable size ranges and diverse crops by clientele by transforming an existing farm into a field laboratory model to train clientele outside of the classroom and building a sustainable education infrastructure for information delivery.

**Scope:** A 25 member, multi-disciplinary team of UF faculty and associated stakeholders planned and implemented the Living IPM Laboratory. The team secured a three year Extension IPM grant from USDA, NIFA and leveraged an additional $110,000 in the first two years.

**Methods:** The field laboratory improvements include: maintaining plantings to attract beneficial organisms and provide year round habitats, demonstrating trap crop strategies, providing structures like bat houses, bird houses, snags and brush piles. Banker plant systems, routine scouting and data reporting and development of educational kiosks, reduction of pesticides were also utilized. Training workshops were taught to County Agents, clientele (farmers and homeowners) and partners.

**Results:** The demonstration farm reduced the use of insecticides by 50% in year one due to a dramatic increase in the number of beneficial and predatory insects and vertebrate predators. Approximately 300 people were trained in 2012. There was a 68% knowledge gain of IPM principles.

**Conclusion:** Clientele evaluations indicated that 81% were adopting at least three IPM strategies.

**Recommendation:** Experiential learning opportunities of on-farm laboratories are an effective method of training clientele to improve the adoption of IPM practices on farms/landscapes.

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Introducing Pomegranates to Volusia County.

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Purpose: Recent record breaking freezes and citrus disease outbreaks have resulted in loss of dooryard citrus trees in Volusia County landscapes. Interest has increased from individuals and commercial growers looking for alternative plants to meet consumer demands for edible fruit in the landscape.

Methods: The UF research and extension team responded by providing educational opportunities to Volusia county homeowners, master gardeners and commercial-scale operations on the establishment of pomegranates as an edible fruit in the dooryard or commercial commodity. Educational opportunities included news articles, newsletters, seminars, a public broadcasted television program, radio interviews and a fact sheet on basic establishment and aesthetic appeal of pomegranates. Four-hundred pomegranate trees (30 varieties) were produced at the UF-IFAS Citrus Research and Education Center in Lake Alfred, FL as part of an on-going project by W. Castle, professor emeritus, to evaluate pomegranate potential in Florida.

Results: The planting locations in either the dooryard or a commercial site of the 400 pomegranate trees sold from the program were recorded on a Volusia County map. All of the 400 trees were sold with future orders exceeding 125 trees. $2400 in proceeds of the tree sale provided funds for the county 4-H youth program. Evaluation data through show of hands showed that 98% (n=85) participants increased knowledge relating to the establishment of pomegranate trees.

Conclusion: All 400 trees were successfully planted in Volusia County. Popularity generated from this program sparked the need for further production by two nurseries in the central Florida area to meet the demand.

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Land Cover and Farmland Habitat Influences on Native Bee Diversity in Northern Florida

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Florida’s abundant and diverse native bees may be important contributors to crop pollination, so it’s important to understand more about what influences their diversity on small farms. Does vegetation management on small farms affect native bee diversity? Or, is land cover and land use around the farm a better predictor of the native bee community on the farm? My ongoing study looks at bee assemblages on a dozen farms in North-central Florida and evaluates vegetation found at the farm edges, in-crop, and in natural plant communities (e.g. wetlands) found on farms. Also, I am evaluating land cover and land use around the farms on a landscape scale. And, I’m identifying pollens carried by native bees on these farms to gain understanding of their pollen collection preferences and their potential for pollinating crop plants.

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Marketing Alternatives for Small-Scale Farmers

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FAMU Extension programming focuses on marketing and enterprise alternatives that will enhance farm profits and marketing success for small-scale farmers. Alternative market opportunities include Farm to School, independent grocery stores and church-supported, local community outlets. Small groups of farmers are trained via on-station and on-farm demonstrations to evaluate production capabilities, as well as to evaluate economic feasibility and cost-effectiveness for small-scale farmers to facilitate these market outlets. 225 participants increased their knowledge and skills in crop production management, harvesting, post-harvest handling, value-added processing, market development and distribution to schools, independent grocery stores and the local community. The Program efforts allows for the creation of alternative market outlets by strengthening the links between producers and consumers for a more secure community and economically viable small-scale farm operations. These operations can benefit from enterprise diversification, facilitate the development of alternative farming systems and expanding marketing opportunities.

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Obesity Prevention through Garden-based Learning for 4th and 5th graders in North Florida

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Overweight and obesity impairs the health of millions of American children. National costs attributed to both overweight and obesity has reached over $92.6 billion. This poster will describe the Red Clay Garden-based education model where youth engage in vegetable-gardening, including value-added processing and agri-preneurship. The participants gain knowledge, skills, attitudes and behaviors that are transferable to making healthy food choices, choosing careers in agriculture and enhancing science and math skills. The target population resides in rural north Florida counties (over 80% of the students receive free or reduced lunches and 89% of the free and reduced lunch students are minority). The poster will report needs assessment results of a quantitative survey given to 164 participants. The needs assessment data established baseline level of knowledge and skills the students had, allowing the program directors to target educational programming to areas of need and ensure effectiveness of garden-based activities.

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Participatory Onfarm Trials of Potato Cultivars In SW Florida

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Potato is a high-value winter and early spring crop in Florida, producing one-third of the US winter/spring crop. The UF/IFAS Potato Program in Hastings, Florida, provides both research and extension to support and expand the production of this important crop in Florida. Potato represents a potential new and niche crop for many small producers in Florida, especially for local, direct markets. The SW Florida Small Farmers Network (SWFSFN) includes growers in the region from Hillsborough to Collier county and has been facilitated since 2005 by Extension agents in participating counties to support onfarm, participatory research on farmer-driven priorities. In 2011 SWFSFN requested and became a partner in the UF/IFAS Potato program in order to evaluate this potential under the growing conditions of SW Florida and under small scale, diversified production practices. SWFSFN growers identified their interest in evaluating different cultivars and the potential of 2 potato crops per growing season in SW Florida. In addition, they were interested in evaluating these cultivars under organic production due to their premium market value. To this end, seed potato of several cultivars were provided by the UF/IFAS Potato Program for both fall and winter plantings with 5 cooperating SWFSFN farmers. This poster reports the results of these onfarm trials and their conclusions supporting the potential of potato as a high value, new crop to be considered in diversified small farms in SW Florida.

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Preparing Young Scientists for Integrating Research and Extension in Water Resources

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As part of the NSF-funded Research Experience for Undergraduates (REU) Program in Water Resources at the University of Florida (UF), the students are provided with a unique opportunity to understand the linkages between research and extension, while conducting interdisciplinary research in water resources. The eight-week REU Program utilizes the extensive infrastructure of UF – Institute of Food and Agricultural Sciences (IFAS) through the Research and Education Centers (RECs). Some students are located at the main campus, in Gainesville, FL, while others students are distributed off-campus, at the RECs, where some of the UF/IFAS faculty are located. This year, three students are conducting research internationally. The students achieve an enriching cohort experience through social networking, daily blogs, and weekly video conferences to share their research and other REU experiences. Several projects for the students involve extension-oriented research working with faculties who have significant extension appointments. All the students are introduced to various types of extension activities across Florida during the Orientation and the 5-day Florida Waters Tour across the state. They learn about water issues in different sectors and visit farms, homes, and the Water Management Districts. Feedback and assessment forms from the past years’ Program indicate that, for most students, our Program was their first exposure to extension in water resources. This model of providing integrated research and extension opportunities in hydrology, where not all the REU participants are physically co-located, is unique and can be extended to other disciplines.

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Small Acreage farms need Estate Planning Too!

Robert Halman  
Collier County Extension, University of Florida IFAS Extension

The Collier county Agricultural program has been implementing small farmer workshops for the last 6 years. The topics presented during these workshops have ranged from livestock to vegetable and fruit production and adaptation of farming techniques that emphasizes Best Management Practices (BMP) for home, market gardens and small farm enterprises. Unfortunately the need for small / part-time farmers to begin thinking about the future and their retirement has gone unaddressed. When questioned about their major concerns that keep them up at night, workshop participants indicated future disability, out-living their retirement dollars and market volatility. These and other concerns were addressed in the 2012 Small Farm Workshop series – Farming on 10 Acres or Less-. Topics of the seminars were reinforced with visits to local farm sites and individual consultations by planning experts. Recent economic trends have increased the need for these types of economic small farm business development, All county seminars’ post program surveys reveal a high percentage adoption of small farm estate planning advice and likelihood of farm succession planning.

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A Small-scale Intensive Vegetable Production System for the Farmers’ Market.

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**Purpose:** Supplying product to a farmers’ market requires successive harvests in manageable quantities. We designed and tested an irrigation system that could be used with organic or conventional fertilizer systems using locally available components.

**Methods:** An irrigation manifold was constructed for under $250. Row lengths were 12 feet long. Irrigation was scheduled using a Fieldscout TDR 100® with 8-inch probe rods calibrated for sandy soils, when readings approached 8. A fertilizer injection system was built, operated from a 12-volt battery, to deliver nitrogen to the irrigation experiment. Irrigation treatments were: ½, 1, and 1.5 times the recommended rate. Fertilizers compared under the same nitrogen rate were: Black Kow®, rosin-coated urea, ammonium nitrate. ‘Florida Giant’ mustard yield and consumer discernment was tested.

**Results:** Fresh weight mustard green weights ranged from 39.6 to 40.8 pounds per 12-feet in the irrigation experiment. Weights ranged from 29.2 to 30.8 pounds per 12-feet in the fertilizer experiment. There were no statistical differences in mustard green yield as a result of fertilizer source or irrigation treatments. An adult panel of taste testers could not discern the taste of prepared mustard greens, between the fertilizer treatments, but were able to discern the taste of the non-fertilized mustard control ($P > 0.001$).

**Conclusions:** We showed that an inexpensive irrigation system can produce large enough quantities of a horticulture crop on 12-foot lengths to supply sequential harvests needed to supply a farmers market. Highest yields (40.8 pounds) were achieved with the nitrogen injection system with two tapes per row.
UF and FDACS Specialty Crop Block Grant: Expanding Production through New Ideas and Protected Structures

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In the US, Florida has the highest percentage increase (27%) in number of small farms growing specialty crops. Consumers are demanding locally grown food yet the production and distribution is not able to meet this demand, partially because production occurs only in the spring-summer growing seasons and a lack of local and regional markets. To meet the need of farmers and then consumers, a partnership was formed between the West Florida Research and Education Center, UF/IFAS Extension, and Panhandle Fresh Marketing Association.

**Goals:** 1) To increase the supply of specialty crops by value/total sales and by extending the growing season from 7 to 12 months to provide year round sales opportunity and 2) expanding markets by providing at least 20 farmers with an improved regional distribution system.

**Outcomes:** The team hosted four field days (Hi Tunnel, Shade Production, Fall Production, and Food Safety/Marketing) that reached 379 participants, 3 food safety programs that reached over 40 producers, several food safety training demonstrations to enable producers to see an easy way to become food safety compliant, and over 15 tours in 2011. From post program evaluations, local producers reported an increase in the total number of protected production structures and an increase in the total number of growers applying for NRCS Loans for new growing structures.

**Impact:** In 2011 and early 2012, 39 number of specialty crop farmers signed up to participate in the Panhandle Fresh Marketing Association, with a total value of $97000 of local produce reaching regional consumers.
Youth Entrepreneurship: Learning by Doing

Donna Salters, Sandra Thompson and Lawrence Carter

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North Florida’s rural communities like many rural communities across the country have seen industries such as agriculture; mining and lumber stagnate or decline. As rural economies change, FAMU has implemented a strategy for sustaining rural communities by encouraging youth entrepreneurship. This poster will describe the partnership forged with Tallahassee Community College to facilitate youth “aging-out” of foster care start businesses. It will also describe the curriculum implementation process, but most importantly, the students’ creation of a real income generating business (Made by Us) which served as the primary tool for instruction.

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