

REPORT

of

In-Service Training (IST#: 30614) / CEU Roundup (FDACS Program # 14836)

**NEW TECHNOLOGY FOR COMMERCIAL VEGETABLE
PRODUCTION**

Wednesday, February 27, 2013

Polycom from 2156 Fifield Hall to 24 host sites statewide



Reported
by

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Grafting and other new techniques have been developed for vegetable and fruit production. Adopting new approaches from other states can benefit Florida's vegetable producers. Dr. Timothy Hartz from the University of California, Davis, CA was invited to share his expertise. Dr. Hartz has been an Extension Specialist with the university, working with the vegetable and strawberry industries since 1988. His research areas include drip irrigation management, soil fertility and environmental water quality protection. He was presenting at UC-Davis through polycom.

The objective of this IST training was to enhance the productivity, profitability, and sustainability in commercial crop production and minimize environmental issues, this IST training and CEU roundup were conducted and polycommed from Gainesville to 24 host sites statewide.

The instructors and topics in the IST training--**New Technology for Commercial Vegetable Production** included:

- *Dr. Nicholas Dufault, Fungicide Basics and Use in Vegetable Disease Management*
- *Dr. Shouan Zhang, Disease Management for Vegetable Production in Florida*
- *Dr. Susan Webb, Managing Insects in Sustainably Produced and Organic Vegetables: Implementing Old Strategies with New and Better Tools*
- *Dr. Zhaohui Tong, Sustainable and High-Functional Materials from Agricultural Waste*
- *Dr. Timothy Hartz/UC Davis, Fertilizer Management for Plant Health and Environmental Water Quality Protection*
- *Dr. Xin Zhao, Grafting for Vegetable Production in Florida*
- *Dr. Peter Dittmar, Reducing off Target Application of Herbicide*

The new techniques presented by the specialists are helpful for growers to enhance profitability of vegetable and fruit production. Dr. Dufault presented about use of fungicide as part of an integrated plan for the management of vegetable diseases in Florida. The presentation focused on the key components related to fungicide resistance and the importance of prevention, mechanical management and cultural practices in maintaining good integrated pest management practices. In Dr. Zhang's presentation, he addressed integrated disease management for vegetable crops using all the tactics available to growers (field scouting, cultural, biological, host-plant resistance, chemical) that provide acceptable yield and high quality in a cost-effective and environmentally compatible manner.

Growers managing vegetables sustainably or organically have improved tools, such as row covers, reflective mulch, and many new or improved insecticides. Dr. Webb's talk concentrated on new knowledge about trap crops and banker plantings to reduce damage from pest insects and encourage beneficials. She also discussed some plant-based resistance for insect-vectored viruses.

Dr. Tong's presentation aimed to assist county faculty and community in learning about high-functionality, value-added and sustainable materials derived from biomass waste (e.g. agricultural waste) and its potential application in soil amendment, slow release fertilizers and other areas such as pest management.

To maintain healthy plants, it's vital to keep N and P where it's intended – at the site where it's available to the crop. Dr. Hartz's presentation outlined the environmental problems caused by N and P losses from agriculture, and discussed practical management practices to reduce nutrient losses from vegetable and berry fields, as well as possible remediation measures.

Grafting for vegetable production is new to county faculty and crop producers as well. Integrated use of grafting in vegetable production for disease management and yield improvement was discussed in Dr. Zhao's presentation. Research updates were provided with respect to grafted tomato and melon production on root-knot nematode control, fertilization program, fruit quality, and economic analysis. The trainees loved this topic so much.

Herbicide drift can decrease yields of off target crops and have an environmental impact. Dr. Dittmar focused on management techniques to minimize the problem, including equipment setup, environmental conditions, and proximity of sensitive plants.

There were 23 registered off-sites including some of the counties in the five extension districts. Data were collected from 19 host sites because the other five host sites were not able to submit their data. There were 11 on-site participants in Gainesville. We had 105 attendees in total. A table of contents with a complete listing of the topics and hyperlinks to those topics are also available online at <http://hos.ufl.edu/faculty/gdliu/service-training#IST30614>.

Analytical Methods for Knowledge Gain

Pre-and post-tests were matched by names and graded. Tests from either pre- or post-tests that had no match were not graded and discarded. No record of incomplete test pairs was kept. The total number of pairs was not compared with registration information. The same name or symbol was recorded, and both pre- and post-test grades were used to obtain means, median, and mode, standard errors, and percentage of knowledge gain. A table (Table 1) is generated with the data.

Table 1. Statistics summary for the In-service Training event

Count of paired tests	68		Knowledge gain (%)
Number of Questions	13		
Evaluation	Correct answers (%)		
	Pre-test	Post test	
Mean	62.7	81.3	18.6
Median	61.5	84.6	23.1
Mode	76.9	84.6	7.7
Standard error	2.6	2.0	-

The survey result indicates that 96.1% of the participants are satisfied and very satisfied with knowledge gain, 92.1% each with the topics and time use, 89.5% with the handouts, 82.9% with the presentations, and 78.9% % with communication in this In-Service Training. The trainees estimated that the new technologies they learned from this IST training were able to help vegetable producers save production cost of an average of \$106.5 per acre and increase productivity as much as \$232.7 per acre.

The key comments from the survey were “Excellent IST but most importantly the inclusion of growers, good basic illustrations and visual.” “Make the session more interactive with audience”.

Needs for potential In-service Training

The attendees are interested in future ISTs. Among the 24 topics listed on the survey for the next IST training, the participants’ top two choices are:

- Interaction of nutrient with each other and with soil moisture, pH
- Disease control

The following three topics are as below:

- Overview of commonly used commercial fertilizer blends
- Importance of commonly used commercial fertilizer blends
- Cover crops and nematode control

Photos taken in the In-service Training



Photo 1. Dr. Timothy Hartz is presenting at UC-Davis for the IST training.



Photo 2. Dr. Xin Zhao is presenting at 2156 Fifield Hall.



Photo 2. Dr. Susan Webb is presenting at 2156 Fifield Hall.