

REPORT

For

In-Service Training 2012

The Second Generation (G2) of Best Management Practices (BMPs) for Commercial
Crop Production

Mid-Florida Research and Education Center, Apopka, Florida

Wednesday, February 29, 2012

Reported

by

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Tuesday, March 06, 2012

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This In-Service Training was held at Mid-Florida Research and Education Center in Apopka, Florida on February 29, 2012. There were 29 participants. The county faculty trained came from 12 counties in the five districts. The training had ten different presentations related to the G2 of BMPs for Florida's commercial vegetable and fruit production. The training included both presentations and demonstrations. The presenters were from the Office of Agricultural Water Policy, FDACS and four University of Florida departments including Agricultural and Biological Engineering, Environmental Horticultural, Horticultural Sciences, and Water and Soil Science.

Presentations and Demonstrations

Mr. Darrell Smith from FDACS emphasizes that we need to keep the nutrients and water in the root zone, work with crop producers together, introduce new technology, improve public awareness – promptly report success stories. The extension specialists' presentations or demonstrations covered:

- Yesterday, today, and tomorrow of BMPs: from problems to solutions. Future research will integrate production and environmental quality. Watershed scale approach will be a critical method to enhance the sustainability of vegetable and fruit production in Florida.

- Controlled irrigation is the key to increase use efficiencies of water and nutrients and reduce water pollution. For commercial squash production, 75 lbs N per acre with controlled irrigation is much better than 150 lbs N per acre with 2-hr fixed irrigation. The best approach to improve fertilizer use efficiency is to invent new fertilizers and to breed new varieties. It is time for breakthrough of new type of fertilizers because of high fertilizer price and tight regulations.
- Application of the Soil Phosphorus Storage Capacity Index (SPSC) is a tool for predicting the possibility of losing phosphorus from root zone and improving soil pH management to benefit from P fertilization. To acidify alkaline soils, application of elemental sulfur is not recommended due to economic and ecological concerns. Instead, appropriate selection of fertilizers can adjust pH of the root zones. Ammonium nitrogen decrease soil pH but nitrate nitrogen increase soil pH. Dr. Richard Tyson wants to use the techniques to educate crop producers. Mr. Robert Hochmuth will take these skills to control pH in hydroponics for vegetable production.
- Biochar and fiber residues are exciting soil amendments and may bring us new methods to increase the capacity to hold water and nutrients of sandy soils. Thus, they may contribute to improving use efficiencies of nutrients and water and minimizing water pollution.
- Compost and animal manures significantly improve soil quality and productivity and hence reduce synthesized chemical requirement in crop production. Accordingly, environmental concerns can be minimized.

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	9		Knowledge gain (%)
Number of Questions	15		
Evaluation	Correct answers (%)		
	Pre-test	Post test	
Mean	59	76	17
Median	60	80	20
Mode	60	70	10
Standard error	3.6	2.1	-

Actual mean grades for the pre- and post-tests as a % of the total number of questions were 59% and 76%, respectively. The survey result indicates that 89% of the participants are satisfied and very satisfied with time use, presentations, Knowledge gain, and communication; 100% with the topics; 83% with the handouts in this In-Service Training.

Needs for potential In-service Training

The attendees are interested in future ISTs. Among the 20 topics for the next IST listed on the survey, the participants' top two choices are:

- Water saving technology
- Importance of timing and placement of fertilizers for vegetables

The following five topics have got an identical preference:

- Controlled release fertilizers
- Water quality and salinity control
- Soil amendment
- Biochar application
- Pest control in organic vegetable production

Photos taken in the In-service Training



Changes in root zone pH. Snap bean (left) and tomato (right) plants changed the root zone pH from 6.2 (purple) to 5.0 (yellow) in 3 hours after they took up ammonium nitrogen.



The In-service Training is in session at Mid-Florida Research and education Center.

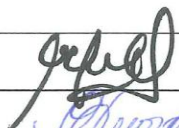
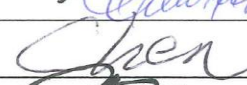
Acknowledgements

We appreciate all the help and input from the Office of Agricultural Water Policy, FDACS, the IFAS Dean for Extension, MREC, KeyPlex, and related county and state extension faculty members.

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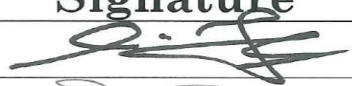
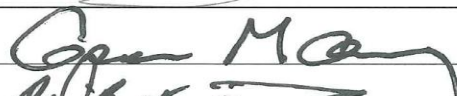
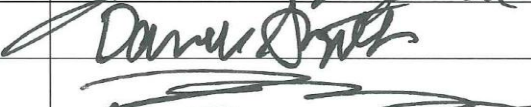
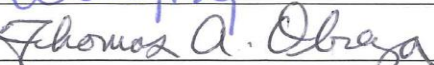
2725 S. Binion Road, Apopka, FL 32703-8504
Mid-Florida Research & Education Center, IFAS/UF
Wednesday, February 29, 2012

First Name	Last Name	Signature
Arland	Andreasen	
Tatiana	Borisova	
Fred	Burkey	
Elizabeth	(vane) Campoverde	
Eduardo	Chavez	
Jianjun	Chen	
Michael	Dukes	
Gary	England	
Bin	Gao	
Aparna	Gazula	
Ed	Hanlon	
George	Harrison	
Robert	Hochmuth	
Brent	Jeansonne	
Robert	Kluson	
Mary	Lamberts	
Vicky	Lee	
Kevin	Lewis	

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First Name	Last Name	Signature
Yuncong	Li	
Guodong	Liu	
Eugene	McAvoy	
David	Nistler	
Monica	Ozores-Hampton	
Juanita	Popenoe	
Darrell	Smith	
Zhaohui	Tong	
Richard	Tyson	
Jeffrey	Ullman	
Alfred	Washington	
Lincoln	Zotarelli	
JEMY	HINTON	
MAT	LOLLAR	
wenjing	Guan	
THOMAS	OBREZA	