

In-Service Training ([IST#: 32287](#))/CEU Roundup ([FDACS CEU #: 36840](#)) CCA
CEU Tracking #: [FL 54559](#) thru [FL 54564](#)

New Technology for Commercial Vegetable and Fruit Production (XII) Wednesday, February 22, 2023

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|----------------------------|---|
| 1. Gilad Freund (Israel): | Blackberry Production in Hot Climates - The Israel Experience |
| 2. Sriyanka Lahiri: | UV light and biocontrol for thrips and mite management in strawberry |
| 3. Thomas Obreza: | IFAS Recommendation updates for Florida's crop production |
| 4. Calvin Trostle (Texas): | Understanding Proper Rhizobial Inoculation of Legumes |
| 5. Yuncong Li: | Update of enhanced efficiency fertilizers (EEF) |
| 6. Muhammad Shahid: | Silicon (Si): A Plant Beneficial Nutrient for Horticultural Crops |



FDACS CEUs				CCA CEUs	
<i>Maximum CEUs</i>		<i>6.0</i>		<i>Maximum CEUs</i>	<i>6.0</i>
Ag Row Crop	6.0	Private Applicator	4.0	Nutrient Management	4.0
Ag Tree Crop	6.0	Limited Urban Fertilizer	2.0	Pest Management	1.0
Demo & Research	6.0			Crop Management	1.0

Instructions

1. Please complete **pre-test** and post-test before and after each of the first presentations.
2. Contact **Dr. Barbra Larson** at ExtensionOnline@ifas.ufl.edu for enrollment problems,
3. For internet issues, call **Mr. Dennis Brown** at (352)317-1701 or email at dennisb@ufl.edu
4. Earn credit by completing **all pre- and post-tests along with the final survey**.
5. Connect at **8:45 am EDT** for sessions.

Agenda

Wednesday, February 28, 2024

Title: New Technology for Commercial Crop Production (XII)

Delivery Format: In person at 1306 Fifield Hall and virtually via Canvas/Zoom

Dr. Wendy Mussoline: Moderator

8:45-9:00 AM Gather, Welcome, Introduction

9:00-9:10 AM Sign-in

9:10-9:20 AM Dr. Saqib Mukhtar: **Program Overview**

9:20-10:10 AM [Pre-test](#); Mr. Gilad Freund ([Israel](#)): **Blackberry Production in Hot Climates - The Israel Experience**; [Post-test](#)

10:10-11:00 AM [Pre-test](#); Dr. Sriyanka Lahiri: **UV light and biocontrol for thrips and mite management in strawberry**; [Post-test](#)

11:00-11:50 AM [Pre-test](#); Dr. Thomas Obreza: **IFAS Recommendation updates for Florida's crop production**; [Post-test](#)

11:50-1:00PM Lunch break

1:00-1:50 PM [Pre-test](#); Dr. Calvin Trostle ([Texas](#)), **Understanding Proper Rhizobial Inoculation of Legumes**; [Post-test](#)

1:50-2:40 PM [Pre-test](#); Dr. Yuncong Li: **Update of enhanced efficiency fertilizers (EEF)** ; [Post-test](#)

2:40-3:30 PM [Pre-test](#); Dr. Muhammad Adnan Shahid: **Silicon (Si): A Plant Beneficial Nutrient for Horticultural Crops**; [Post-test](#)

3:30-3:50PM Survey

3:50PM Adjourn

Proposer:

Dr. Guodong (David) Liu

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Approved CEUs



FDACS CEUs				CCA CEUs	
<i>Maximum CEUs</i>			<i>6.0</i>	<i>Maximum CEUs</i>	<i>6.0</i>
Ag Row Crop	6.0	Private Applicator	4.0	Nutrient Management	4.0
Ag Tree Crop	6.0	Limited Urban Fertilizer	2.0	Pest Management	1.0
Demo & Research	6.0			Crop Management	1.0

Presentation Description

Title: Blackberry Production in Hot Climates - The Israel Experience

Specialist: Mr. Gilad Freund (Israel)

Presentation description: There is a growing demand for blackberries as a fresh and healthy "superfood." New varieties are large, sweet, and high producing, and can be grown in intensive systems as a perennial profitable fruit crop. Appropriate production methods for intensive production systems include elite tested varieties, pot production in soilless substrates, high tunnels with photo-selective shade nets, and computer-controlled fertigation (combined irrigation and fertilization) on a daily basis. These methods enable production of high-quality fruit under marginal conditions, including the many challenges of climate change. Our presentation will cover these points and also include future applied research questions that need to be investigated under local Florida growing conditions.

Title: UV light and biocontrol for thrips and mite management in strawberry

Specialist: Dr. Sriyanka Lahiri (University of Florida/IFAS)

Presentation description: Description: Ultraviolet (UV) light has the potential to cause significant tissue and genetic damage in insects and mites. This tool can be used effectively in the field management of two spotted spider mites in strawberry. Studies conducted in the Lahiri lab clearly show that the eggs of two spotted spider mites can be killed in the field, using UV light. An additional tool for integrated pest management is biological control. Predatory mites can effectively suppress chilli thrips populations in the field by feeding on the adult and immature thrips. Along with chemical control, these economically damaging pests of strawberry can be managed.

Title: IFAS Recommendation updates for Florida's crop production

Specialist: Dr. Thomas Obreza (University of Florida/IFAS)

Presentation description: Description: Nutrient management research and extension are undergoing a renaissance in Florida. Targeted state funding supports UF/IFAS to examine the appropriate rate for applying fertilizer to a variety of vegetable and agronomic crops for normal and economical crop production. Research is leading to evidence-based recommendations on best management practices for supplying fertilizer to achieve maximum yield and quality goals of the grower while doing so in a manner that minimizes nutrient inefficiencies to the environment. Soil testing and site-specific recommendations are also under study, embracing the "4Rs plus 1" concept of nutrient management (right rate, source, placement, and timing) along with the 5th R, right water management. Investigators are emphasizing crop yield and quality responses while considering the economics of fertilizer use. Projects also include aspects that will help us understand the environmental fate of applied N and/or P.

Title: Understanding Proper Rhizobial Inoculation of Legumes

Specialist: Dr. Calvin Trostle (Texas)

Presentation description: Yuncong Li: Legumes offer a chance to incorporate proper use of plant/crop-specific Rhizobium or Bradyrhizobium. These bacteria fix "free" nitrogen from the air for crop use. Many farmers assume legumes fix nitrogen. But if the roots have no nodules (or ineffective nodules) there is little to no nitrogen fixation. Ag workers will learn tips about rhizobial products (liquid, granular, powder) and their application method to planting seed. Also, "scouting your nodules" is a concept to help producers assess nodulation and adjust their management based on the degree (or lack) of nodulation.

Title: Update of enhanced efficiency fertilizers (EEF)

Specialist: Dr. Yuncong Li (University of Florida/IFAS)

Presentation description: Enhanced Efficiency Fertilizers (EEFs) offer many advantages, including improved nutrient use efficiency, enhanced yields, reduced crop production costs, and mitigation of nutrient losses to the environment. The evolution of EEFs involves strategies such as maintaining nutrients in the root zone through reduced solubility (e.g., chemically modified slow release), retaining nutrients in a less leachable form (e.g., nitrification inhibitors), implementing physical barriers (e.g., fertilizer coating), and incorporating additives/ biostimulants (e.g., humic substances). This presentation will provide an insightful update on these fertilizer technologies.

Title: Silicon (Si): A Plant Beneficial Nutrient for Horticultural Crops

Specialist: Dr. Muhammad Adnan Shahid (University of Florida/IFAS)

Presentation Description: Silicon is second most abundant element after oxygen on the earth. The orthosilicic acid is the form of silicon absorbed by plants, while it is accumulated in plant tissues as silicon dioxide (SiO₂). Silicon concentration in plant tissues varies from 0.1 to 10% on dry weight basis with higher concentrations in monocots than dicots. Silicon was approved as plant beneficial substance in 2012 by the Association of American Plant Food Control Officials (AAPFCO). Silicon found to be beneficial in agricultural crops in terms of improved abiotic stress tolerance and resistance to various fungal and bacterial pathogens, and high quality produce.

Speaker's Bio-Sketch

Dr. Wendy Mussoline, the Putnam County Extension Director, has and will continue to serve as the UF/IFAS Commercial Agriculture Extension Agent for Putnam County. She started her Extension Career as a Multi-County Agent for both Flagler and Putnam in October 2017. Her primary responsibilities are to help commercial growers and ranchers remain economically and environmentally sustainable through science-based research. She completed her post-doctoral research with Dr. Ann Wilkie (UF Soil & Water Sciences) focused on the bioenergy potential from agricultural feedstocks, particularly sweet potato. She completed her doctorate in Environmental Engineering from the Erasmus Mundus Joint Doctorate Program (EMJD) in Europe. Her research was to maximize the energy potential and enhance degradation kinetics of the lignocellulosic feedstock, namely rice straw, to improve biogas production and electricity generation through anaerobic digestion.

Dr. Saqib Mukhtar, Professor and Associate Dean for Extension, Agriculture and Natural Resources provides leadership in the development, implementation, and evaluation of IFAS/Extension's major initiatives that address critical issues in Florida's food, agricultural, natural resources, and horticultural production systems.

Mr. Gilad Freund is the director of Mop Hahar in Israel - a research group that specializes in Berry production in hot climates. Over the past 10 years they have worked to test and develop growing protocols for blackberry, raspberry and blueberry soilless production under Israeli conditions, a hot and dry Mediterranean climate. Today there are over 120 Israeli Berry producers using these production protocols. Many of them are small to medium family farmers who have expanded into berry production as a second crop. Gilad's family also operates a family farm south of Jerusalem, which specializes in blackberry production using photo-selective shade netting on high tunnels and intensive pot production with fertigation.

Dr. Sriyanka Lahiri has worked as an Assistant Professor of Strawberry and Small Fruit Crops Entomology, at University of Florida's Gulf Coast Research and Education Center for the last 4.5 years. With 39 research and extension articles published, 235 citations, \$937,407 in grants from the Specialty Crop Block Grant, Florida Strawberry

Growers Association, USDA-BRAG, USDA-CPPM-EIP, IR-4, and industry sponsors, Sriyanka has developed a regionally recognized program, where she has the current expertise in managing chilli thrips in strawberry in the nation. She received her PhD from NCSU, Raleigh, and completed two postdoctoral research projects at NCSU and UGA, Tifton.

Dr. Thomas A. Obreza is a Professor of Soil, Water, and Ecosystem Sciences. He received his graduate degrees in Soil Science from the Univ. of Florida. Dr. Obreza began his UF/IFAS career in 1989 at SWFREC in Immokalee, where he worked on improving nutrient and water management of citrus, vegetable, and sugarcane crops. In 2002, Dr. Obreza came to the main UF campus as an Extension Specialist focusing on soil fertility and plant nutrient use efficiency. From 2009 to 2023, Dr. Obreza served as an Associate Dean for Extension. He has since returned to his soil fertility roots to direct the UF/IFAS Nutrient Management Program and the UF/IFAS Soil Testing Laboratory.

Dr. Calvin Trostle is a native Kansas farm boy and 11-year 4-H member. Calvin trained in agronomy and soil science at Kansas State, Texas A&M and University of Minnesota. Calvin now serves West Texas and the state as an Extension agronomist for alternative and lesser crops including sunflower, grain sorghum, industrial hemp, alfalfa, etc. since 1999. He has conducted over 1,300 Extension presentations and 600 media programs. His working motto is “Information to help (west Texas) farmers make management decisions for their farm or ranch.”

Dr. Yuncong Li is a Professor of Soil, Water, and Ecosystem Sciences and holds an M.S. in Agronomy/Soil Science from the University of Georgia and a Ph.D. in Environmental Science from the University of Maryland. He received his M.S. in Agronomy/Soil Science from the University of Georgia and his Ph.D. in Environmental Science from the University of Maryland. He joined UF/IFAS as a postdoc in 1994 at IRREC, Fort Pierce, and as an assistant professor in 1996 at TREC, Homestead. His research and extension program focuses on water and soil quality, management practices to improve nutrient use efficiency, and advancements in fertilizer technology. He has authored/co-authored over 300 refereed papers, over 100 extension articles, 2 books, and 16 book chapters. He is a fellow of the American Association for the Advancement of Science (AAAS), American Society of Agronomy (ASA), and Soil Science Society of America (SSSA).

Dr. Muhammad A. Shahid, assistant professor of physiology of fruit crops at UF/IFAS, Horticultural Sciences Department, North Florida Research and Education Center, Quincy, FL. Dr. Shahid's research program is focused to develop an integrated research and extension program in stress tolerance and physiology of fruit crops that includes cold hardy citrus, tree fruit, tree nuts, and small fruits. He is investigating the influence of biotic (pest & diseases) and abiotic stressors and their interactive effect on morphological, physiological, biochemical, and anatomical attributes in fruit crops, and identify mitigation strategies enhancing resilience to these stressors with improved production. Dr. Shahid has authored more than 80 journal publications, 10 book chapters, and edited two books.