In-Service Training (IST#: 31893)/CEU Roundup (FDACS CEU #: 30223)
CCA Tracking #: FL 53817 thru FL 53822

New Technology for Commercial Vegetable and Fruit Production (IX)

Wednesday, February 24, 2021


Dr. L. Sharma

Role of Precision Agriculture in the BMP


Dr . L. Ferguson
UC Davis

Diagnosing Tree Crop Problems in the Field


Dr. D. Treadwell

Developing BMPs for Organic Systems, the Carrot Example


Dr. M. Paret

New Tools for Early Plant Disease Assessments


Dr. R. Kanissery

Weed Control in Horticultural Crops: Novel Approaches for Improving Efficacy, Sustainability and Crop-Safety


Dr. S. Strauss

Impacts of Management on Soil Microbes in Florida Vegetable Production

Instructions

1. Enroll at https://ifas-fertigators.catalog.instructure.com/courses/2021---new-technology-for-commercial-vegetable-and-fruit-production. Once enrolled, you will be automatically emailed a canvas link to log into the course. Please complete the pre-test.
2. If you have enrollment problems, contact **Melissa De La Paz** at ExtensionOnline@ifas.ufl.edu
3. If you have any internet connection issues, please contact **Dennis Brown** at (352)317-1701 or dennisb@ufl.edu
4. According to the guidance from the Dean for Extension, UF/IFAS employees do not have to pay to enroll. Please email **David Liu** at guodong@ufl.edu for the promotion code. Non-UF/IFAS employees will pay an enrollment fee of $60.
5. To receive credit for attending, you will need to complete the post-test, final survey, and enter an attendance code into an online quiz. The code will be announced **live** during the Zoom meeting through the chat box on Zoom.
6. Please get connected at 8:45 am EST.

New Technology for Commercial Crop Production (IX)

In-Service Training

Agenda

Wednesday, February 24, 2021

Title: **New Technology for Commercial Crop Production (IX)**

Delivery Format: **Canvas/Zoom**

AGENDA

Dr. Wendy Mussoline: Moderator

9:00 AM:	Get connected and Welcome
9:00-9:10 AM	Sign-in and Pre-test
9:10-9:20 AM	**Dr. Steven Sargent**: Introduction and Program Overview
9:20-10:10 AM	**Dr. Lakesh Sharma**: Role of Precision Agriculture in the BMP
10:10-11:00 AM	**Dr. Louise Ferguson** (ASHS President, from UC, Davis): Diagnosing Tree Crop Problems in the Field
11:00-11:10 AM	10-minute break
11:10-12:00 PM	**Dr. Danielle Treadwell**: Developing BMPs for Organic Systems, the Carrot Example
12:00-1:00PM	Lunch break
1:00-1:50 PM	**Dr. Mathews Paret**: New Tools for Early Plant Disease Assessments
1:50-2:40 PM	**Dr. Ramdas Kanissery**: Weed Control in Horticultural Crops: Novel Approaches for Improving Efficacy, Sustainability and Crop-Safety
2:40-2:50 PM	10-minute break
2:50-3:40 PM	**Dr. Sarah Strauss**: Impacts of Management on Soil Microbes in Florida Vegetable Production
3:40-4:00 PM	Post-test and survey
4:00PM	Adjourn

Proposers:

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Approved CEUs

FDACS CEUs	6	**CCA CEUs**	6
Private Applicator - Ag	6	CM	1
Ag Row Crop	6	NM	2
Natural Areas Weed Management	6	PM	2
		SW	1

Speakers' Presentation Description

Title: Role of Precision Agriculture in the BMP

Specialist: Sharma, Lakesh, Ph.D.

Presentation Description:
Fertilizer use, whether inorganic or organic form, can pose a threat to the environment if misused. The nitrogen use efficiency (NUE) is low, ~33% due to the poor synchrony between the N application and crop demand. A real-time active optical sensor could help determine N need of a specific area covered by sensor footprint in a specific time. The sensor uses reflected light from the crop canopy called NDVI to estimate leaf chlorophyll content directly related to leaf N. Estimating leaf N could help in predicting N needs of the plant. Successful sensor-based algorithms have been developed for mid-west states. Similar work with better sensors is required for Florida.

Title: Diagnosing Tree Crop Problems in the Field

Specialist: Ferguson, Louise, Ph.D. (University of California Davis)

Presentation Description:
This presentation will focus on how to prepare and execute a diagnostic field call from the moment of notification through final diagnostic confirmation. Steps will include pre-visit preparation, gathering information of history, situation, spatial variability and symptom expression through the final diagnosis of abiotic and biotic causes.

Title: Developing BMPs for Organic Systems, the Carrot Example

Specialist: Treadwell, Danielle, Ph.D.

Presentation Description

Carrot production is increasing along the east coast due to favorable climatic conditions and market demand. In 2019, farmers in Florida produced 3,000 acres of conventional and 450 acres of organic carrot. Carrot is a long-season crop planted in late fall and harvested in early spring. The crop is grown during season transitions, and the range of air and soil temperatures creates a challenge to predict nitrogen mineralization from organic fertility sources. No BMP recommendations exist for organic crops in Florida. Thus this study was initiated to begin to establish a nitrogen recommendation for organic carrot in Florida. Results will be presented from a three-year study that evaluated a range of nitrogen rates in carrot grown on certified organic land, including crop quality, yield, and crop and soil nitrogen distribution.

Title: New tools for early plant disease assessment

Specialist: Paret, Mathews, Ph.D.

Presentation Description

This presentation will share key research and commercial perspectives on Multispectral sensing, Hyperspectral sensing, Raman spectroscopy, Machine Learning and Artificial intelligence for early identification of plant diseases, and Recombinase Polymerase Amplification for field-based DNA/DNA detection of plant pathogens.

Title: Weed Control in Horticultural Crops: Novel Approaches for Improving Efficacy, Sustainability and Crop-Safety

Specialist: Kanissery, Ramdas, Ph.D. (University of Florida, SWFREC)

Presentation Description:
The presentation will cover novel and alternative approaches for managing a problem that has troubled crop production forever: "weeds." From weed identification apps to herbicide spraying robots, weed management in commercial horticultural production has advanced rapidly in the adoption of new technologies in the last few decades. The topics discussed will include precision placement of herbicides, novel fumigation strategies and non-chemical techniques like the steam application as effective, sustainable and crop-safe weed control approaches. The potential for utilizing unmanned aerial systems (UAS) for informed weed management decisions will also be discussed.

Title: Impacts of management on soil microbes in Florida vegetable production

Specialist: Strauss, Sarah, Ph.D.

Description: Soils have a complex community of microbes that are critical for soil nutrient cycling and have the potential to impact plant growth. The composition of these communities is influenced by the soil environment, crop, and management practices. Understanding the influence of vegetable management practices on the soil microbial community is critical for determining how we can potentially manipulate soil microbes to improve soil health.

Speakers' Bio-Sketch

Dr. Lakesh Sharma, Assistant Professor Agriculture and State Extension Specialist of Soil Fertility and Sustainable Soil and Water Sciences Department, University of Florida/IFAS, Gainesville, FL. Lakesh's work is focused on developing new Best Management Practices (BMPs) in Agriculture for Florida growers and revise the old BMPs as needed. He is working on nutrient management using sensor technology along with updated recommendation philosophies. Lakesh has helped in the development of nutrient recommendations for North Dakota State and Maine. He is a state BMPs coordinator and national leader for nutrient management, sensor technology scientists communities. In Florida, Lakesh is developing advanced nitrogen and sulfur recommendations for corn, cotton, and potatoes.

Dr. Louise Ferguson is a Professor and State Extension Specialist of Mediterranean Tree Crops in the Department of Plant Sciences in the College of Agricultural and Environmental Sciences at University of California Davis. She has focused on applied production practices of pistachio, olive, fig, citrus and persimmon. Among her research areas are developing mechanical pruning for pistachio and table olive, mechanical harvesting of table olive, salinity tolerance, management and physiology of pistachio, heat accumulation based phenological model development of pistachio, breeding of non-caprifying fig cultivars, and mandarin introductions to California. She has coedited pistachio, table olive and citrus production manuals. She has traveled extensively for the for USAID programs in Iraq, Afghanistan, Pakistan, Egypt, and the Republic of Afghanistan. She was voted "2017 Outstanding Extension Educator" is currently President of the American Society of Horticultural Science and Core Faculty for the California Ag Leadership Foundation.

Dr. Danielle Treadwell is an Associate Professor and State Extension Specialist in Horticultural Sciences in Gainesville. Her research interests are conservation tillage, cover crop management, and nutrient management in organic and conventional specialty crop systems. She is a member of the Southern Cover Crop Council, The Organic Center's Science Advisory Committee, and a Leadership Team Member for eOrganic, the national extension community for organic professionals. Her current research efforts include ongoing organic carrot research, cover crop management in agronomic crops and orchards, and cultural pest management in organic peach.

Dr. Mathews Paret is an Associate Professor and State Extension Specialist of Plant Pathology at the University of Florida/IFAS. Dr. Paret's primary research includes studies on the etiology and epidemiology of plant diseases of vegetables and ornamental crops, development of integrated pest management strategies for diseases of economic relevance, and detection and characterization of plant pathogens.

Dr. Ramdas Kanissery is an Assistant Professor and State Extension Specialist of weed management in the Horticultural Sciences Department at the University of Florida (UF)/IFAS and is located at Southwest Florida Research and Education Center (SWFREC). He develops weed control strategies in citrus and vegetable production with the goal of having a positive impact on crops and the environment. He also leads outreach efforts that offer weed identification, crop-safe herbicide use, and herbicide phytotoxicity diagnosis through field days, workshops, and in-service training. Kanissery has authored more than 50 research and extension publications and serves as an *ad hoc* reviewer and editorial board member for several journals.

Dr. Sarah Strauss, is an Assistant Professor and State Extension Specialist of soil microbiology at the University of Florida/IFAS Southwest Florida Research and Education Center, received her PhD at Arizona State University. Prior to her appointment at UF, she held postdoctoral positions with the USDA-ARS in Wenatchee, WA, and Davis, CA. Her research focuses on examining the interactions between soil microbial communities and crop production and utilizing that knowledge to develop effective methods to manipulate these interactions for Florida crops and soils. Since beginning her position four years ago with UF, Dr. Strauss has presented her research over 30 times to growers and scientists across the state and the US. Dr. Strauss has authored more than 20 journal publications.