UF | IFAS Extension
UNIVERSITY of FLORIDA

In-Service Training (IST#: 32388)/CEU Roundup (FDACS Program # 001068,…,001107)/CCA CEU Tracking #: FL 54786 thru FL 54795

Advancing Blackberry Production in Florida

Wednesday, May 7, 2025, from 12:00 PM to 4:50 PM

GCREC Auditorium & via Canvas

Register for Hybrid IST 32388 "*Advancing Blackberry Production in Florida*" on 5/7/25

Moderator: **Miss Emily Beach**

- 12:00 PM Welcome and Pre-test
- 12:10 PM Dr. Chris Gunter, **Program Overview**
- 12:20 PM Dr. Zhanao Deng, **Blackberry breeding updates and promising low-chill experimental cultivars**
- 12:45 PM Dr. Shinsuke Agehara: **Chilling requirements and chemical budbreak induction for successful blackberry production in Florida**
- 1:10 PM Dr. David Liu and Nurjahan Sriti, **Fertigation for blackberry production in North-central Florida**
- 1:35 PM Dr. Muhammad Shahid, **Critical Steps in Blackberry Plant Care for Optimum Plant Growth, Yield and Berry Quality in Florida**
- 2:00 PM Dr. Natalia Peres, **Important diseases of blackberry in Florida**
- 2:25 PM Dr. Liburd, Oscar Emanuel, **Common arthropod pests in blackberries and options to manage these pests.**
- 2:50 PM Sriyanka Lahiri, **Important Entomological Issues in FL Blackberry Production**
- 3:15 PM PM Dr. Johan Desaeger, **Nematodes that can cause damage to blackberries**
- 3:40 PM Dr. Nathan S. Boyd, **Common Weed Problems of Florida Blackberry and Potential Solutions**
- 4:05 PM Dr. Steven Sargent and Nurjahan Sriti, **Postharvest handling technology for blackberry quality and shelf life**
- 4:30 PM Post-test and Survey
- 4: 50 PM Adjourn

Instructions

1. Complete all pre-tests before the 1st presentation and post-test after each one.
2. For enrollment issues, Contact **Misti Rucks** at 352-273-3468 or misti.rucks@ifas.ufl.edu,
3. For internet issues, contact **Mr. Dennis Brown** at (352)317-1701 or at dennisb@ufl.edu
4. Earn CEU credits by achieving at least 75% correct answers on post-test along with the final survey.
5. Joint the session at 11:45 AM EDT.

Agenda

Moderator: **Emily Beach**

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4:05 PM Dr. Steven Sargent, **Postharvest handling technology for blackberry quality and shelf life**

4:30 PM Post-test

4:50 PM Adjourn

Proposer and Organizer

Dr. Zhanao Deng
Professor and Extension Specialist for Plant Breeding
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Approved CEUs

	FDACS Approved CEU			ASA Approved CEU	
Class ID	Category	Unit	Tracking ID	Category	Unit
1062	Demo & Research	0.5	FL 54786	PD	0.5
1086	Demo & Research	0.5	FL 54787	CM	0.5
1088	Limited Urban Fertilizer	0.5	FL 54788	NM	0.5
1092	Demo & Research	0.5	FL 54789	CM	0.5
1094	Ag Row/Ag Tree Crop	0.5	FL 54790	PM	0.5
1095	Ag Row Crop	0.5	FL 54791	PM	0.5
1097	Ag Row/Forestry	0.5	FL 54792	PM	0.5
1100	Commercial Fumigation	0.5	FL 54793	PM	0.5
1101	Demo & Research	0.5	FL 54794	CM	0.5
1103	Demo & Research	0.5	FL 54795	CM	0.5
Total		5			5

Presentation Description

Title: ***Blackberry breeding updates and promising low-chill experimental cultivars***
Specialist: Dr. Zhanao Deng

Blackberry is an emerging specialty crop in Florida. Blackberry varieties commercially available for Florida growers are all developed outside of Florida, in Arkansas, North Carolina, etc., where there are plenty of chilling hours below 45F during the dormancy period of blackberry plants. Thus, these commercial varieties generally require 300 to 900 or more hours of chilling every winter. Florida growers, especially those in central Florida or more southern areas, have much fewer hours of chilling. Without sufficient chilling, blackberry plants may have low yields or other production issues. Identifying and/or breeding low-chill cultivars are essential for the growth of the Florida blackberry industry. This presentation will provide a summary of the latest findings from the blackberry variety trial and breeding projects at the UF/IFAS Gulf Coast Research and Education Center.

Title: ***Chilling requirements and chemical budbreak induction for successful blackberry production in Florida***
Specialist: Dr. Shinsuke Agehara

Most blackberry cultivars require an accumulation of 300 to 900 chill hours below 45°F (7°C) to break bud dormancy. However, Florida's mild winters often fail to meet these chilling requirements, resulting in low and erratic budbreak, reduced yields, and an extended harvest period. This presentation provides an overview of the chilling requirements of different blackberry cultivars and the effectiveness of chemical budbreak inducers as an alternative strategy. Optimization of budbreak induction is critical for improving fruit set concentration and overall blackberry productivity in regions with insufficient winter chill.

Title: ***Fertigation for Blackberry Production in Florida***
Specialist: Dr. Guodong Liu (David)

This presentation will focus on the use of granular fertilization and fertigation to enhance nutrient use efficiency in blackberry production. It will cover best practices for applying fertilizers, tailored to Florida's growing conditions, to improve berry quality and yield. The talk will also address common issues in fertigation, such as improper mixing, clogged irrigation systems, and nutrient imbalances, along with strategies for solving these problems. Additionally, the preparation of effective nutrient solutions, including water pH and conductivity, will be discussed to ensure optimal plant nutrition and productivity.

Title: ***Critical Steps in Blackberry Plant Care for Optimum Plant Growth, Yield and Berry Quality in Florida***
Specialist: Dr. Shahid, Muhammad

This talk will highlight the essential steps in blackberry plant care to ensure optimal growth, yield, and berry quality in Florida's unique climate. Key topics include selecting appropriate blackberry varieties for local conditions, proper site preparation, and effective soil management practices. It will emphasize the importance of irrigation, fertilization, and pest control to promote healthy plant development. The talk will also cover pruning techniques to enhance air circulation, fruit production, and disease resistance. Additionally, strategies for managing environmental stresses, such as heat stress, will be discussed to maximize berry quality and ensure a successful blackberry harvest.

Title: ***Important Diseases of Blackberry in Florida***
Specialist: Dr. Natalia Peres
Dr. Peres' presentation will focus on the identification, prevention, and management of common blackberry diseases that affect Florida's production systems. The talk will cover a range of pathogens responsible for diseases in blackberries, discussing their symptoms, spread, and the impact they have on yield and fruit quality. Dr. Peres will also explore management strategies, including cultural practices, chemical controls, and resistant varieties, to help growers minimize losses and improve the health of blackberry plants in Florida's unique growing conditions.

Title: ***Common Arthropod Pests in Blackberries and Potential to Manage these Pests using Biological Control Tactics***
Specialist: Dr. Oscar E. Liburd

There are two principal mite species, broad mite, *Polyphagotarsonemus latus* Banks, and the twospotted spider mite, *Tetranychus urticae* Koch that feeds on blackberries. Broad mite infestation is marked by curled and distorted leaves. They feed at the growing tips and buds, which can severely limit the growth of the plant, and it also negatively affects yield. The twospotted spider mite feeds on the underside of leaves, causing leaves to drop prematurely and reduce yield. When organic and conventional blackberry farms were sampled, we found a significantly higher percentage of predatory mites on organic farms. Furthermore, experiments were conducted to manage the twospotted spider mites using a reduced-risk miticide, abamectin, and a biocontrol predatory mite, *Neoseiulus californicus*. The biocontrol agent provided as good or better sustainable control of twospotted spidermite as the predatory mite. Adopting some of these selective tactics in an integrated approach could be used to manage mite pests in blackberries.

Title: ***Important Entomological Issues in FL Blackberry Production***
Specialist: Dr. Sriyanka Lahiri

Blackberry is an emerging small fruit crop in Florida. A two-year field study was conducted by the Lahiri lab to document the insect pest species that could potentially pose economic issues in this crop. The species of insects and their population dynamics within the blackberry crop will be discussed. Management options targeting these pest species will also be discussed. References will be made to publication of this study in Perry et al. 2022 (https://doi.org/10.32473/edis-in1376-2022).

Title: ***Nematodes that can cause damage to blackberries***
Specialist: Dr. Johan Desaeger

Plant-parasitic nematodes are common microscopic soilborne parasites that cause considerable crop loss all over the world. They are often overlooked because their damage can be confused for other nutritional or disease problems. Florida is a hotspot for these nematodes, as they prefer warm climates and sandy soils. Several plant-parasitic nematodes have been found to be associated with blackberries, such as dagger, lesion and stubby root nematodes, but not much is known about the amount of damage they cause. An overview will be given of the risk these nematodes pose to blackberry production with a focus on Florida.

Title: ***Common Weed Problems of Florida Blackberry and Potential Solutions (Focusing on weed management strategies)***
Specialist: Dr. Natthan Boyd

Blackberry production is relatively new in Florida and most weed management recommendations are based on research conducted in states further north. Dr. Boyd will provide updates on current research on weed management and summarize recommendations for Florida. The focus will be on the integration of management tools to form an integrated weed management program for blackberry production.

Title: ***Postharvest Handling Technology for Blackberry Quality and Shelf Life***
Specialist: Dr. Steven Sargent
Dr. Steven Sargent's presentation will focus on the critical role of postharvest handling in preserving blackberry quality and extending shelf life. The talk will explore key factors influencing postharvest quality, including temperature control, red drupelet reversion, leakiness, weight loss, acidity, pH, sugar content, anthocyanins, and antioxidants. Dr. Sargent will discuss how varying storage temperatures affect these factors and provide strategies to reduce postharvest losses. Additionally, the presentation will address handling techniques and varietal differences, offering methods to maximize freshness and marketability for high-quality fruit.

Speaker's Bio-Sketch

Miss Emily Beach (elbeach@ufl.edu**)** serves as the Agriculture and Natural Resources Agent for UF/IFAS Extension in Lafayette County. In this role, she is dedicated to supporting the productivity and profitability of commercial agricultural operations, while also helping landowners implement best practices for natural resource conservation. Emily plays an active role in youth education, providing outreach that builds awareness and understanding of key agricultural commodities.
Lafayette County's diverse agricultural landscape includes major crops such as blackberries, watermelons, corn, cotton, and peanuts. The region also supports several dairy operations and is home to a large number of timberland owners, making natural resources management a critical component of Extension efforts in the county.

Dr. Christopher Gunter (cc.gunter@ufl.edu**)** is a professor of plant breeding and currently serves as the Chair of the Horticultural Sciences Department at the University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS). He earned his B.S. degree in Horticulture from Purdue University, followed by both his M.S. and Ph.D. in Horticulture from the University of Wisconsin–Madison. With a distinguished career dedicated to advancing horticultural science, Dr. Gunter brings a wealth of experience in academic leadership, research, and extension. Prior to joining UF/IFAS in 2021, he held faculty and administrative positions at other leading land-grant institutions, where he was widely recognized for his work in vegetable crop production systems and translational plant science. At UF, Dr. Gunter leads a diverse department committed to innovation in plant breeding, sustainable crop production, and addressing critical challenges in food and agriculture. Under his leadership, the department continues to expand its global impact through cutting-edge research, interdisciplinary collaboration and Extension, and student-centered teaching.

Dr. Zhanao Deng (zdeng@ufl.edu**),** plant breeder and professor of environmental horticulture at the UF/IFAS Gulf Coast Research and Education Center, has been testing commercial blackberry varieties and breeding new blackberry varieties for several years. The focus of his blackberry research and breeding program has been on identifying and developing suitable varieties that are well adapted to the low-chill subtropical environment in Florida and can produce robust plants, profitable yields, and large, firm, and flavorful berries. Dr. Deng has selected many new blackberry lines, and some of them have been established in several blackberry field trials in Florida. In addition, he is searching for sources of resistance to major diseases in blackberry production and sequencing and analyzing the genomes and transcriptomes of blackberries for improving blackberry breeding efficiency.

Dr. Shinsuke Agehara (sagehara@ufl.edu**)**, assistant professor of horticulture. Agehara's research emphasizes understanding plant morphological and physiological adaptation mechanisms to environmental stimuli and stresses and incorporating the knowledge to develop integrated production practices. Extension duties are directly connected to the research program and seek to provide educational programs on fertilization, irrigation, cultural management practices, and protected agriculture for vegetable and fruit crop production. The overall goal of this extension program is to support vegetable and fruit crop industries in Florida by supporting county extension agents for educational programs and disseminating relevant research results via reports and electric media (EDIS reports, popular articles, videos, and slides).

Dr. G. David Liu (guodong@ufl.edu**),** Associate Professor and State Extension Specialist in nutrient eco-management of vegetable and fruit crops. David received his Ph.D. in Plant Nutrition from the Chinese Academy of Agricultural Sciences, M.S. in Plant Physiology and Biochemistry, and B.S. in Crop Sciences both from Hunan Agricultural University. David's academic interests include improving nutrient and water use efficiencies for commercial crop production. David works closely with the state and county faculty and growers to enhance the sustainability of agriculture and environment as a component of best management practices (BMPs).

Dr. Muhammad Shahid (mshahid@ufl.edu**)**, an assistant professor of horticulture at UF/IFAS North Florida Research and Education Center. He earned his graduate degrees in Plant Physiology from the University of Agriculture, Faisalabad. Dr. Shahid has focused on integrated research and extension in stress tolerance and physiology of fruit crops that include cold hardy citrus, tree fruit, tree nuts, and small fruits. He has published over 93 journal articles in peer reviewed journals and more than 50 extension articles.

Dr. Natalia Peres (nperes@ufl.edu**)**, professor of plant pathology. Dr. Natalia Peres conducts basic and applied research on important diseases affecting strawberry production in Florida. The goals of Dr. Peres' research program are to develop a better understanding of strawberry disease etiology and the environmental factors affecting their development as well as to develop effective and sustainable disease control methods that will help reduce fungicide applications and lower grower costs. The Extension program provides research results on developing sustainable and more profitable strategies for managing strawberry diseases to commercial growers, Extension agents, industry personnel, and other scientists.

Dr. Oscar E. Liburd (oeliburd@ufl.edu), a professor of fruit and vegetable entomology in the Entomology and Nematology Department at the University of Florida. Dr. Liburd has spent the last two decades studying insect pests of small fruits and vegetables, including blackberries, with the goal of managing these pests by using alternatives to chemical pesticides. He has published more than 150 journal articles and numerous book chapters. Prof. Liburd has sat on many agricultural grant review panels and has been Associate Editor for several journals. He has also been President of the Southeastern Branch Entomological Society of America, and the Florida Entomological Society.

Dr. Sriyanka Lahiri (lahiris@ufl.edu) has worked as an Assistant Professor of Strawberry and Small Fruit Crops Entomology, at University of Florida's Gulf Coast Research and Education Center since 2019. With 50 research and extension articles published, 445 citations, over $1 million 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 production in the nation. She received her PhD from NCSU, Raleigh, and completed two postdoctoral research projects at NCSU and UGA, Tifton.

Dr. Johan Desaeger (jad@ufl.edu**)**, an associate professor of nematology at the University of Florida. He received his degrees in Belgium at the Universities of Gent and Leuven. His nematology career spans over 25 years in different capacities, international research, private industry and academia. Since 2016, he has been at the University of Florida's Gulf Coast Research and Education Center. His research is focused on integrated nematode management (INM) for vegetables, small fruits and other high-value crops. Dr. Desaeger has authored 70 refereed publications, over 100 extension and popular press articles, seven book chapters, two nematicide patents, and co-edited a new book on INM.

Dr. Nathan Boyd (nsboyd@ufl.edu) is the Associate Center Director at the Gulf Coast Research and Education Center (GCREC) and a Professor of Weed Science. His research and extension program is focused on the development of integrated weed management plans for vegetable, strawberry, and ornamental crops. Dr. Boyd emphasizes the incorporation of biological knowledge with precision technology as well as chemical, physical, and cultural management tools. Dr. Boyd collaborates with researchers from a wide range of disciplines to develop pest-management options that are effective and economically viable. He works closely with industry and grower groups to address current and future weed management issues.

Dr. Steven Sargent (sasa@ufl.edu) **is** Professor and Extension Postharvest Specialist at the University of Florida/IFAS, in the Horticultural Sciences Department. He received his graduate degrees from Michigan State University in Horticulture (M.S.) and Agricultural Engineering Technology (Ph.D.). His focus area is the application of technology to reduce postharvest losses of fresh fruits and vegetables by maintaining/extending quality. He has studied the application of harvest technology, including the use of harvest aids in tomatoes and reduction of damage in mechanically harvested blueberries. Also, he has investigated cooling methods for a variety of tropical and temperate crops, both current and those with potential for expanded production.