

APRIL 2023 | VOL. 23:04

Citrus from the Ridge to the Valley

CENTRAL FLORIDA CITRUS EXTENSION

April 2023

Last week we held our annual Florida Citrus Growers' Institute in Avon Park. We were still on the beautiful campus of South Florida State College, but in the University Center Auditorium instead of the theatre. I hope those that attended would agree that the venue was well suited to our group, providing a relaxed, friendly setting, comfortable seating, and a large screen to display the presentation slides. If you missed the event or would like to see any of the presentations again, stay tuned for when the recordings are posted online in the next few weeks.

We can all agree that our trees desperately need rain, and it looks like we may be getting some this week. Hopefully that trend will continue and we will see the trees perk up. With the expected onset of flush, populations of leaf miner and psyllids will increase, along with lebbek mealybug in some locations. Also canker spray programs will begin to provide that protective layer to the fruit and leaves as they grow in size. For any questions, please contact your area agent.

Many of you are utilizing the trunk injections and anxiously waiting to see what the next few weeks bring and observing the trees' responses to the oxytetracycline.

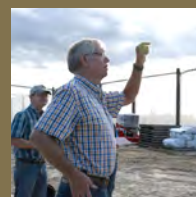
In this issue you will find the April weather forecast, some important information on funding opportunities, upcoming pesticide training and CEU events. We hope you enjoy reading this issue!

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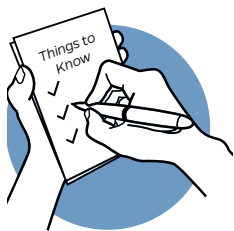


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Please Take Note...

CRAFT - Existing Tree Therapies Program - open for applications until April 30, 2023



BY AJIA PAOLILLO

The Citrus Research and Field Trail Foundation (CRAFT) is accepting applications now until **April 30, 2023** for the "Existing Tree Therapies Program". Growers can apply to receive funding for applications of products such as Oxytetracycline trunk injections, Brassinosteroids, 2-4,D, Gibberellic Acid, and more. To be considered for funding, growers can submit existing blocks (must already be planted) which are not currently enrolled in another CRAFT cycle. Blocks submitted for funding can be a maximum of 100 acres with at least 10 acres being contiguous. CRAFT will evaluate applications for any blocks less than 10 acres on a case-by-case basis. As with other CRAFT cycles, growers are required to submit data from the enrolled blocks into an online platform. Growers will be chosen to receive funding for this program through a lottery system and be notified of their acceptance in late May 2023. Please visit the CRAFT website for more information and for a link to their full rules and eligibility requirements for the program <https://craftfdn.org/existing-tree-therapies/>. You may also contact Tamara Wood tamara@craftfdn.org or Tina Buice tina@craftfdn.org if you have additional questions.

USDA Emergency Conservation Program Application Deadline Extended



BY AJIA PAOLILLO

The US Department of Agriculture (USDA) has extended the window for application until **May 22, 2023** for the Emergency Conservation Program (ECP) for damages associated with Hurricane Ian in September 2022. The ECP can provide producers up to 75% of the cost to restore their farm from hurricane damages. As stated in the USDA news release from March 27, 2023:

"The approved ECP practices under this authorization for Hurricane Ian recovery include:

- Removing debris from farmland;
- Grading, shaping, releveling, or similar measures;
- Replacing or repairing permanent fences; and
- Restoring conservation structures and other installations"

For more information please click here to view the full news release https://www.fsa.usda.gov/state-offices/Florida/news-releases/2023/usda-extends-deadline-for-emergency-conservation-program-applications-from-florida-producers-in-28-counties?utm_medium=email&utm_source=govdelivery and contact your Farm Service Agency (FSA) representative.

2023 Florida Citrus Growers' Institute Presentations to be Posted Online Soon

The 2022 Florida Citrus Growers' Institute was held on April 4th in Avon Park at the South Florida State College campus. The educational presentations were recorded and will be available online at the citrus agent's website in a few weeks: <https://citrusagents.ifas.ufl.edu/>. You may also access archived presentations from past years Institute programs. So, if you missed the presentations or would just like to review the information, please click on the videos and view the slides.



Thank you again to all the speakers, sponsors, and growers that made the 2023 Florida Citrus Growers' Institute possible!

2023 April Weather Outlook

BY CHRIS OSWALT

The National Oceanic and Atmospheric Administration (NOAA) has recently published its latest weather outlook for the April 2023, and the outlook for temperature and rainfall is particularly noteworthy. According to the outlook, there is a higher probability of above-normal temperatures during this period (as indicated in figure 1). This means that we may expect to experience warmer temperatures compared to what is typically seen during the April.

The outlook for rainfall (depicted in figure 2) also presents a different picture, with an equal chance for above or below-normal rainfall. This suggests that we may receive about normal amounts of rainfall that would be typical for April.

The El Nino Southern Oscillation (ENSO) forecast also plays a crucial role in shaping the weather outlook for this period. The forecast indicates that La Nina conditions have ended. We are currently under ENSO-neutral conditions. The forecast predicts that these neutral conditions will persist through the spring and early summer of 2023. Another concern would be the probability for hurricanes during neutral ENSO conditions, Colorado State University's 2023 hurricane season forecast will be released on April 13, 2023.

In conclusion, the latest NOAA weather outlook for the April 2023 suggests that we may experience warmer temperatures and equal chances for above or below rainfall than what is typical for the period although the U.S. Monthly Drought Outlook has dry conditions persisting for peninsular Florida.

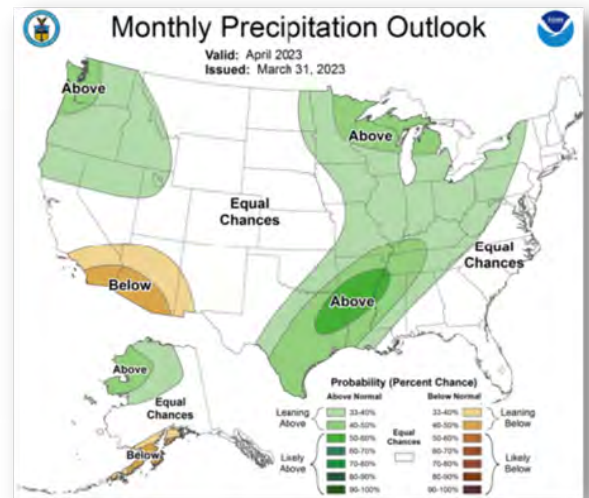
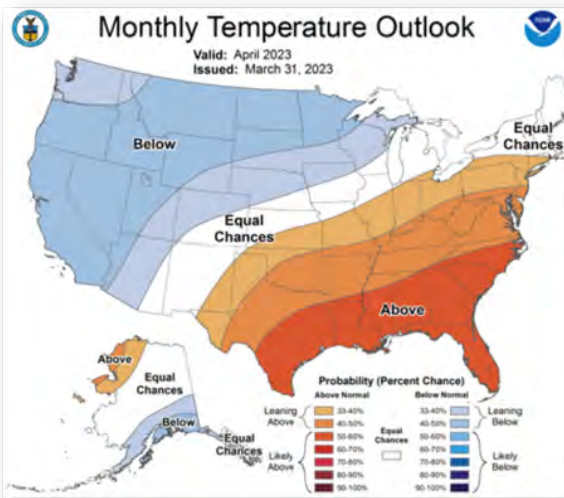


Figure 1. April 2023 temperature outlook

Figure 2. April 2023 precipitation outlook

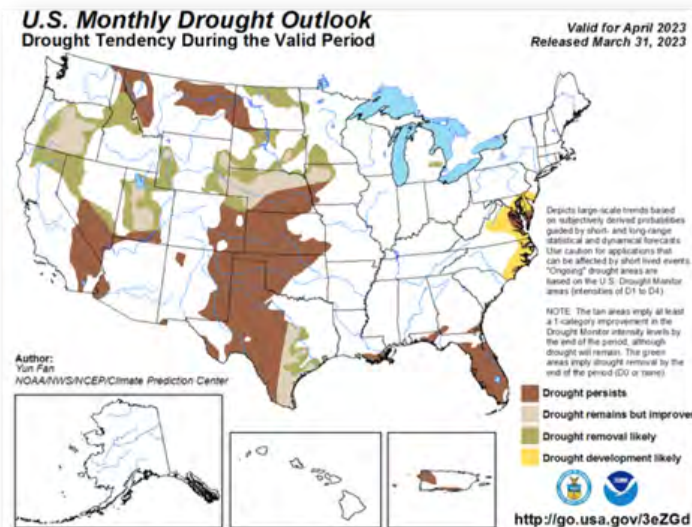


Figure 3. April 2023 drought outlook



Controlling Citrus Canker

BY AJIA PAOLILLO

Beginning this time of the year, continuing throughout the summer, and into fall, citrus canker precautions need to be taken to ensure a low infection rate. Citrus canker is a bacterial disease caused by the bacteria *Xanthomonas citri* subsp *citri*. The bacterium can enter plant tissue through the stomates on the leaf and fruit surfaces, or through wounds caused by mechanical injury or insects such as the Leafminer. Canker can affect the leaves, fruit, and stems of citrus, causing raised corky lesions and with severe infections, can cause fruit drop. The lesions affect the outside appearance of the fruit, but not the interior fruit quality. When inoculation occurs later in the season, the lesions can be much smaller, and not as noticeable as lesions from early infections.

Canker is most often moved by wind driven rain, especially conditions related to tropical storms, hurricanes, or even our typical summer thunderstorms. Some growers use windbreaks to reduce the spread of canker into and within their groves. Windbreaks are most often large trees, that act as a barrier around the grove. Canker can also be spread by personnel, on contaminated clothing and equipment. Decontamination of clothing and equipment can reduce the spread of the disease either within a grove or between different locations.

Management of canker is very important for fruit grown for the fresh market, due to the lower marketability of the fruit because of the blemished exterior appearance. Growers selling fresh fruit can run into problems such as rejected loads, when trying to export fruit internationally, if canker is found in the grove. Processed oranges should also have a management program for canker, although not usually as intense as that for fresh fruit. The processed program would be to reduce canker associated fruit drop. Copper products have been shown to be the most effective in managing this disease. Copper covers the fruit and leaf surface, creating a barrier to reduce infection. However, once the fruit and leaf surfaces grow and expand, untreated areas are exposed. Oranges and tangerines continue to be susceptible to infection up until 60-90 days after petal fall, with grapefruit being susceptible up to 120 days after petal fall. Fruit are most susceptible to infection when they are 0.25-1.25 inches in diameter for oranges and 0.5-1.5 inches in diameter for grapefruit. The flowchart on the next page illustrates the susceptibility of different citrus varieties to canker.

Copper products are more effective at limiting fruit infection than leaf infection. This is due to the faster expansion of leaves compared to the growth rate of fruit, which is slower. Rainfall can also cause the copper coating to degrade leaving the fruit and leaves vulnerable to infection. A recommended spray program has been created to ensure proper coverage throughout the most susceptible periods, depending on the variety.

Controlling Citrus Canker, cntd.

BY AJIA PAOLILLO

Highly Susceptible

Grapefruit
Mexican Lime
Some Early Oranges



Hamlin
Pineapple
Navel
Lemon
Lime



Midseason Oranges
Valencia
Tangerine Hybrids

Least Susceptible



Tangerines

Oranges - April-July

Early processing oranges - Maximum of five copper sprays at intervals of 21 days apart

- 1.Early April
- 2.Late April
- 3.Mid-May
- 4.Early June
- 5.Late June

Some early orange varieties such as Navel, or high color score early varieties, may need a spray before April and beyond July for effective control. Also consider early bloom periods and wet or dry spring weather, these factors can affect the start of the spray schedule.

Midseason and Valencia oranges - Three copper sprays 21 days apart

- 1.Mid-April
- 2.Early/Mid-May
- 3.Late May/Early June

Grapefruit - April - October

Grapefruit can be susceptible through full expansion (September- October). For fresh fruit, there are other fungal diseases that are being managed with fungicides, in which copper can be incorporated with to control canker. For instance, adding copper to spray applications for scab to protect the spring flush will aid in canker control. Spray applications for melanose in April-June will also protect leaves and fruit from Canker. As the season progresses, through October, additional copper sprays will be needed at 21 day intervals, to protect fruit until full expansion.

Tangerines - April - June

With most tangerines being tolerant of canker, copper sprays for the control of Alternaria, should also manage canker.

Citrus Copper Application Scheduler

Because rainfall can affect the efficacy of the copper spray, timing of applications during the rainy season is very important. The Citrus Copper Application Scheduler is a web-based program designed to assist growers with application timing based on rainfall and estimated residual copper remaining from previous sprays. You may find this tool on the AgroClimate website <http://agroclimate.org/tools/citrus-copper-application-scheduler/>. Here you will enter information about the nearest weather station, scion variety, bloom date, and previous spray applications. You may learn more about this tool in the EDIS publication "[A Web-Based Tool for Timing Copper Applications in Florida Citrus](#)" PP289.

Lebbeck Mealybug in Florida Citrus

BY LOURDES PÉREZ CORDERO AND DR. LAUREN DIEPENBROCK



Figure 1. Gall-like deformation of fruit caused by the Lebbeck Mealybug infestation.

Photo by: Tonya Weeks (UF/IFAS CREC)



Figure 2. Lebbeck Mealybug and waxy ovisac.

Photo by: Tonya Weeks (UF/IFAS CREC)

The Lebbeck Mealybug, also known as the Hibiscus Mealybug, is a pest of citrus that has recently become problematic for the Florida citrus industry. This insect feeds by piercing the plant and sucking the sap from the tree. The nymphs and the adult females are known to feed from any part of the tree except the root system. There appears to be a preference for the calyx of the fruits that are still developing as well as points of injury on bark. Their saliva can cause deformation of the fruit (Figure 1), chlorosis in leaves, and stunted growth of the plant. In addition, their excretion can accumulate on top of the leaves and cause sooty mold to grow on leaves. This is less than ideal since it reduces the leaves' exposure to the sun, affecting photosynthesis.

This insect not only affects citrus, but it has a very wide host range. It can infest over 50 plant families, including fruiting trees like avocados, ornamental plants such as roses and hibiscus, and even weeds. All citrus species grown in Florida are susceptible to this pest, therefore we must keep an eye out, especially during fruit development, since they can cause the fruits to drop prematurely and reduce yield.

Females are fairly visible due to their whiteish contrasting color as opposed to the green color of the plant, but also because of their large waxy ovisacs (capsule that contains the eggs) (Figure 2). Another unique characteristic of this pest is that it bleeds purple when crushed. The Field Guide for *Nipaecoccus viridis* (published by the Journal of Integrated Pest Management, Volume 14) is included in this article (Figure 3) and can help growers identify the different stages of the Lebbeck Mealybug and tree symptoms. Remember that early detection is the key.

Management for Lebbeck Mealybug is still under development, however because protection of developing fruit is key to reducing fruit drop from mealybug feeding. Applications of Movento, after petal fall and in accordance with the formulations label, could be useful for early management. Because most of the population of Lebbeck Mealybug is in the crawler or juvenile stages throughout the year, insecticides aimed at managing Asian citrus psyllid, citrus leafminer, and other insect pests should reduce overall damage by the mealybug. It is well documented that insecticides alone will not provide full control of this pest, so long term it is imperative to consider inclusion of management practices that can support predatory insect and spider populations.

Lebeck Mealybug in Florida Citrus, cntd.

BY LOURDES PÉREZ CORDERO AND DR. LAUREN DIEPENBROCK

For more information of the Lebeck Mealybug, please contact your local extension office and/or check out the following links:

- 1) Hibiscus Mealybug (Hemiptera: Pseudococcidae) – Biology, Host Plants, Current Management Practices, and a Field Guide for North America -Journal of Integrated Pest Management, Volume 14, Issue 1, 2023, 3, <https://doi.org/10.1093/jipm/pmac029>
- 2) Lebeck Mealybug *Nipaecoccus viridis* (Newstead)- UF/IFAS EDIS <https://edis.ifas.ufl.edu/publication/IN1280>

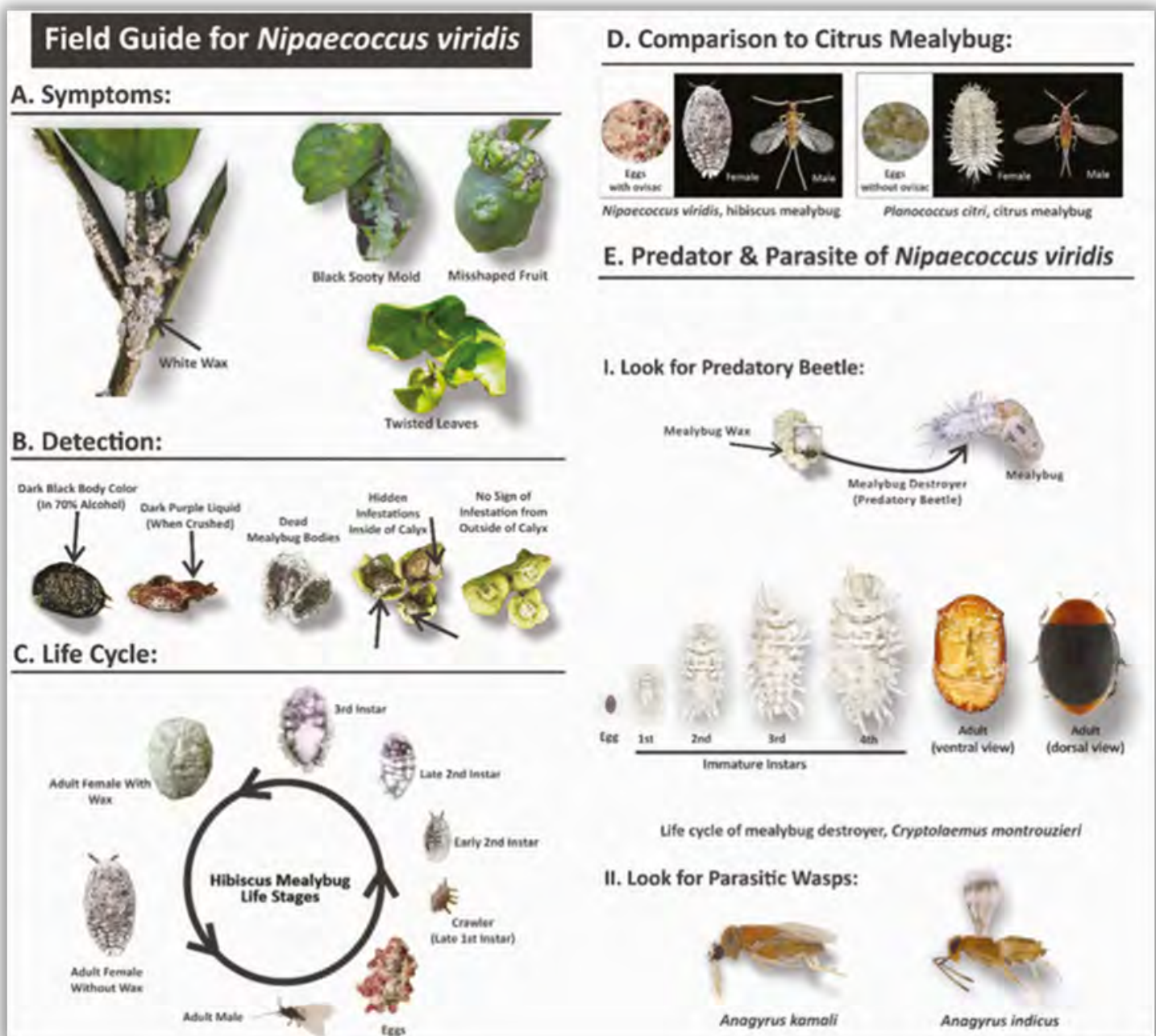
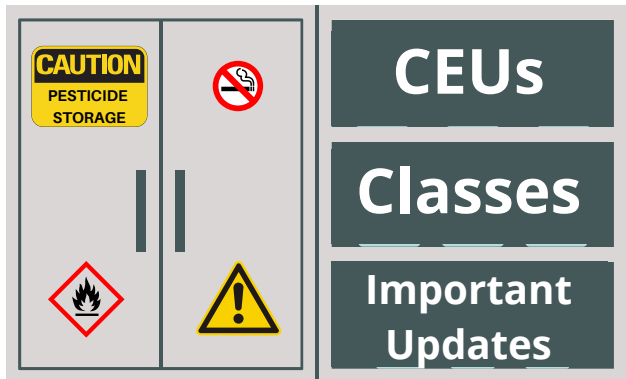


Figure 2. Field Guide for Lebeck Mealybug. Journal Integrated Pest Management, Volume 14, Issue 1, 2023, 3, <https://doi.org/10.1093/jipm/pmac029>



The Pesticide Cabinet

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Don't forget to be earning CEUs!

Remember your pesticide license is only valid for 4 years.
You can renew by earning CEUs or taking the exams again.

- Private - 4
- Ag Tree Crop - 8
- Aquatic - 16
- Orn & Turf - 12

How many CEUs do you need?

Everyone needs 4 CEUs in Core
in addition to the required
CEUs in your category

- Natural Areas - 16
- Right of Way - 8
- Ag Row Crop - 8
- Demo & Res. - 4

Private and Ag Tree Exam Review Class

Date: Thursday April 20, 2023 **Time:** 8:30am-12:30pm

Location: UF/IFAS Extension DeSoto County
2150 NE Roan St
Arcadia, FL 34266

Cost: \$15/class

Instructor: Ajia Paolillo

Registration: Please email ajiacunningham@ufl.edu to register

This class will review the required information for the Private and Ag Tree Crop exams to obtain restricted use pesticide licenses in Florida

4 CEUs available in:

Private or Ag Tree Crop
(Max of 4 CEUs)

Private Applicator and Core Pesticide Prep. Training

Date: Friday May 12, 2023 **Time:** 8am-5pm (Exam 1:30-5pm)

Location: UF/IFAS Extension Polk County
1702 S Holland Pkwy.
Bartow, FL 33830

Cost: \$15/class (lunch included)

Instructors: Luis O. Rodriguez

Registration: <https://www.eventbrite.com/e/private-applicator-core-pesticide-prep-training-tickets-611135000237>

This class will review the required information for the Private and Core exams to obtain restricted use pesticide licenses in Florida

2 CEUs available in:

Core, Private, Ag Tree, and Ag Row
(Max of 4 CEUs)

CEU Article Update!

4 Core CEU's are always available online through Citrus Industry magazine

<https://citrusindustry.net/ceu>

Important Note: Beginning February 2023, CEU articles will no longer be available in the printed copy of Citrus Industry Magazine. The articles and tests will only be available online at the above website.

However, these past issues from 2022 still have printed articles that are eligible for CEU credit until their expiration date which is one year from the publication date:

May 2022, August 2022, & November 2022.

CAUTION
PESTICIDE
STORAGE



CEUs

Classes

**Important
Updates**

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2023 South Central Florida CEU's Days



3 Opportunities for Pesticide Applicators to Obtain Their Category CEU's

- Time: 9:00 am – 3:30 pm
- Location: UF/IFAS Extension Polk County (1702 S Holland Pkwy, Bartow, FL 33830)
- Cost: \$20.00 (Lunch will be included)
- Phone: 863-519-1049 or 863-519-1041

Day 1 July 07

Day 2 July 14

Day 3 July 21



Registration day 1

1. <https://www.eventbrite.com/e/polk-county-ceus-days-day-1-agricultural-ceus-tickets-598640970257>

6 CEU's in total

- 3 CORE 487 or 482
- 3 Private, Ag Animal, Ag Row Crop, Ag Tree Crop, Ornamental & Turf, Soil & Greenhouse Fumigation, and Demonstration and Research



Registration day 2

<https://www.eventbrite.com/e/polk-county-ceus-days-day-2-structural-landscape-ceus-tickets-598665934927>

6 CEU's in total

- 3 CORE 487 or 482
- 3 Private, LLO, LCLM, LUF, Limited Structural, Ornamental & Turf, and Demonstration and Research



Registration day 3

<https://www.eventbrite.com/e/polk-county-ceus-days-day-3-nat-areas-aquatics-forestry-row-ceus-tickets-598678873627>

6 CEU's in total

- 3 CORE 487 or 482
- 3 Private, Aquatic, Forestry, Natural Areas, Right-Of-Way, Ornamental & Turf, and Demonstration and Research

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Produce Safety Alliance Grower Training

WHO SHOULD ATTEND

Fruit and vegetable growers and others interested in learning about produce safety, the Food Safety Modernization Act (FSMA) Produce Safety Rule, Good Agricultural Practices (GAPs), and co-management of natural resources and food safety are encouraged to attend. The PSA Grower Training Course is one way to satisfy the FSMA Produce Safety Rule requirement.

WHAT TO EXPECT

The trainers will spend approximately seven hours of instruction time covering content contained in these seven modules:

- Introduction to Produce Safety
- Worker Health, Hygiene, and Training
- Soil Amendments
- Wildlife, Domesticated Animals, and Land Use
- Agricultural Water (Part I: Production Water; Part II: Postharvest Water)
- Postharvest Handling and Sanitation
- How to Develop a Farm Food Safety Plan

In addition to learning about produce safety best practices, key parts of the FSMA Produce Safety Rule requirements are outlined within each module. There will be time for questions and discussion, so participants should come prepared to share their experiences and produce safety questions.

BENEFITS OF ATTENDING

The course will provide a foundation of Good Agricultural Practices (GAPs) and co-management information, FSMA Produce Safety Rule requirements, and details on how to develop a farm food safety plan.

After attending the entire course, participants will be eligible to receive a certificate from the Association of Food and Drug Officials (AFDO) that verifies they have completed the training course.

REGISTRATION

The fee for the training is \$40 for everyone. Cost includes training materials, lunch, refreshments, and a certificate of attendance issued by AFDO. Participation for the entire training is required for the certificate.

Seats are limited. Registration closes 1 week prior to training date. For general registration questions, contact Sarah McCoy at sarahmccoy@ufl.edu.

****Please note: NO walk-ins. NO substitutions, transfers, or refunds will be issued within one week of the training start date. NO minors are permitted to attend. NO animals allowed, except those defined as service animals under the ADA.****

For more information contact Taylor O'Bannon, M.S. State Specialized Agent-Food Safety taylorlangford@ufl.edu

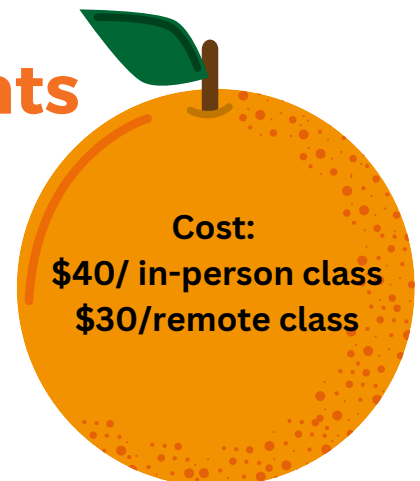
Upcoming Grower Training Events

In-Person - Produce Safety Alliance Grower Trainings

- April 19th- Belle Glade <https://psa041923.eventbrite.com>
- April 25th- Tavares <https://psa042523.eventbrite.com>

Remote- Produce Safety Alliance Grower Training

- May 2nd-4th - Remote <https://psa050223.eventbrite.com>



Orchard Field Day

Fruit Crop Diversification Options



Thursday, April 27, 2023 | 9:00 a.m. to 3:30 p.m.

Location:

Frank Stronach
Conference Center,
UF/IFAS Plant
Science Research
and Education Unit
(PSREU)
2556 West Highway
318, Citra, FL 32113

Questions?

Contact Dustin Huff,
UF/IFAS Horticultural
Sciences,
dustinmhuff@ufl.edu,
or (352) 273-2005

Coordinators:
Ali Sarkhosh,
Muhammad Adnan
Shahid, and Kevin
Athearn

**Registration
is Free**

Time	Session
9:00 a.m.	Registration and Welcome Dr. Ali Sarkhosh and PSREU team
9:30 a.m.	Persimmon Production and Challenges Dr. Ali Sarkhosh , UF/IFAS Horticultural Sciences Department
10:00 a.m.	Blueberry Cultivars for North and North Central FL Dr. Jeff Williamson , UF/IFAS Horticultural Sciences Department
10:30 a.m.	Blackberry Cultivars for North FL (online via zoom) Dr. Amanda McWhirt , Department of Horticulture, University of Arkansas
11:00 a.m.	Cold Hardy Citrus Production and Challenges Dr. Muhammad Adnan Shahid , UF/IFAS North Florida Research & Education Center - Quincy
11:30 a.m.	Costs and Potential Returns for Selected Fruit Crops Dr. Kevin Athearn , Regional Specialized Agent in Rural and Agribusiness Development, UF/IFAS North Florida Research & Education Center - Suwannee Valley

Time	Session
12:00 p.m.	Lunch
1:15 a.m.	Marketing and Promoting FL products and Agritourism Melissa Hunt , Florida Department of Agriculture and Consumer Services
1:45 p.m.	Opportunities for Fruit Producers to Connect with Consumers Dr. Catherine G. Campbell , UF/IFAS Family Youth and Community Sciences Department
2:10 p.m.	Elderberry Dave Jarnagin , Hyldemoer + Co
2:35 p.m.	Passionfruit Mark Bailey , UF/IFAS Extension Marion County
3:00 p.m.	Roselle Brandon White , UF/IFAS Extension Lake and Orange County

To Register, please click:
<https://www.eventbrite.com/e/557146719837>

PLEASE RSVP BY April 20, 2023
or call Lesley Reddick (352) 591-2678



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FL Forestry Assoc.
FL Landscape Maintenance Assoc.
FL Dept of Ag and Consumer Service
FL Golf Course Superintendents Assoc.
FL Turfgrass Assoc.
FL Fertilizer Agrichemical Assoc.
FL Pest Management Assoc.
FL Tomato Committee
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