Our May OJ Break, will be held on Wednesday, May 15, 2024. It will begin at 10:00 a.m. at the UF/IFAS Citrus Research and Education Center in Lake Alfred. The month’s agenda includes Dr. Ute Albrecht, UF/IFAS SWFREC and Dr. Larry Duncan, UF/IFAS CREC. Additional information along with meeting registration is included in the enclosed flyer. This month our lunch sponsor is Jay Dugger and Helena Agri-Enterprises LLC. There will also be two CEUs for your RUP license in the following categories: private, ag row, ag tree and demonstration and research. CCA CEUs will be available in the pest management category.

2024 Florida Citrus Growers’ Institute

I wanted to thank you all for attending this year’s Florida Citrus Growers’ Institute. The presentation videos have now been posted to the UF/IFAS Citrus Agents website (https://citrusagents.ifas.ufl.edu/archived-presentations/2024/) at a link on the front page. I would also like to thank all the sponsors of the program whom without their support would not be a success.

2024 Hurricane Season Forecast

Last month I brought you all the CSU 2024 hurricane forecast and needless to say the number of predicted storms was well, significant. I thought it might be interesting to look at the actual storms that passed within 50 miles of Bartow under La Niña and neutral ENSO conditions. There have been 15 named hurricanes from 1950 to 2022. From 1950 to 2000 there were 10 storms and from 2000 to 2022 there were 5 hurricanes. Looks as if we are running a little above average here in the last 22 years (Figure 1).
# Hurricane List

<table>
<thead>
<tr>
<th>Storm Name</th>
<th>Date Range</th>
<th>Max Wind Speed</th>
<th>Min Pressure</th>
<th>Max Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>NICOLE 2022</td>
<td>Nov 06, 2022 to Nov 11, 2022</td>
<td>65</td>
<td>980</td>
<td>H1</td>
</tr>
<tr>
<td>IAN 2022</td>
<td>Sep 22, 2022 to Oct 01, 2022</td>
<td>140</td>
<td>937</td>
<td>H5</td>
</tr>
<tr>
<td>IRMA 2017</td>
<td>Aug 30, 2017 to Sep 13, 2017</td>
<td>155</td>
<td>914</td>
<td>H5</td>
</tr>
<tr>
<td>ERNESTO 2006</td>
<td>Aug 24, 2006 to Sep 04, 2006</td>
<td>65</td>
<td>985</td>
<td>H1</td>
</tr>
<tr>
<td>GABRIELLE 2001</td>
<td>Sep 11, 2001 to Sep 21, 2001</td>
<td>70</td>
<td>975</td>
<td>H1</td>
</tr>
<tr>
<td>ERIN 1995</td>
<td>Jul 31, 1995 to Aug 06, 1995</td>
<td>85</td>
<td>973</td>
<td>H2</td>
</tr>
<tr>
<td>BARRY 1983</td>
<td>Aug 23, 1983 to Aug 29, 1983</td>
<td>70</td>
<td>986</td>
<td>H1</td>
</tr>
<tr>
<td>BREnda 1968</td>
<td>Jun 18, 1968 to Jun 26, 1968</td>
<td>70</td>
<td>990</td>
<td>H1</td>
</tr>
<tr>
<td>ABBY 1968</td>
<td>Jun 01, 1968 to Jun 13, 1968</td>
<td>65</td>
<td>992</td>
<td>H1</td>
</tr>
<tr>
<td>CLEO 1964</td>
<td>Aug 20, 1964 to Sep 11, 1964</td>
<td>130</td>
<td>938</td>
<td>H4</td>
</tr>
<tr>
<td>DONNA 1960</td>
<td>Aug 29, 1960 to Sep 14, 1960</td>
<td>125</td>
<td>930</td>
<td>H4</td>
</tr>
<tr>
<td>UNNAMED 1959</td>
<td>Jun 18, 1959 to Jun 22, 1959</td>
<td>75</td>
<td>974</td>
<td>H1</td>
</tr>
<tr>
<td>EASY 1950</td>
<td>Sep 01, 1950 to Sep 05, 1950</td>
<td>105</td>
<td>960</td>
<td>H3</td>
</tr>
</tbody>
</table>
The National Oceanic and Atmospheric Administration (NOAA) has recently published its latest weather outlook for May to July, and the outlook for temperature and rainfall. According to the outlook, we are expecting air temperatures to be from leaning to likely above normal during this period (Figure 2).

The rainfall outlook (Figure 3) forecast calls for leaning towards above-normal rainfall (33 to 40% chance) to equal chances for above or below rainfall. The El Niño Southern Oscillation (ENSO) forecast also plays a crucial role in shaping the weather outlook for this period. Currently, we are still under El Niño advisory and a La Niña watch. It is forecasted that these El Niño conditions will transition (a 85% probability) into neutral conditions heading into May to June 2024. There is a 60% chance that these neutral conditions will evolve into La Niña by June to August. The latest El Niño forecast three month running average (Jan/Feb/Mar) this month dropped from 1.5 to 1.2 (for Mar) indicating the shift towards neutral conditions.

In conclusion, the latest NOAA weather outlook for the period from May to July 2024 period suggests that we may experience leaning to likely above temperatures and a leaning towards above-average rainfall. The U.S. Monthly Drought Outlook has no indications of drought conditions for peninsular Florida (Figure 4).
Improving Soil Health with Cover Crops in Florida Citrus Groves

Researchers: Sarah Strauss, Emma Dawson, Elena Karlsen-Ayala, Brittney Monus, Ute Albrecht, Ramdas Kanissery

Contact: Sarah Strauss, strauss@ufl.edu UF/IFAS SWFREC

Take Home Message:
• Cover crops can impact the abundance of microbes important to soil nitrogen and carbon cycling.

Effort Statement: We have expanded our trials to include commercial groves with younger trees and are starting to examine the changes to plant growth-promoting bacteria in soils planted with cover crops. These organisms might have more direct impacts on tree health.

Summary: Soil health refers to the capacity of a soil to sustain biological productivity, maintain environmental quality, and promote plant health. Cover crops (CC) are one way to improve soil health. However, the influence of CCs on soil nutrient cycling and microbial communities in Florida citrus groves has been poorly explored. We are examining the impact of planting CCs in the row middles of commercial Florida citrus groves. Treatments have included two mixtures of CCs (legumes and non-legumes and non-legumes only) and a no-treatment/grower standard. Our first trials were started in groves with trees that are over 35 years old. In these trials, both CC mixtures significantly increased soil carbon availability in the row middles compared to the control after three years. Significant increases in nitrogen availability and the number of microbial genes involved in soil nitrogen transformations were found in the soil planted with legumes compared to non-legumes and the control, suggesting biological nitrogen fixation contributed to improved nitrogen availability. Overall, our results suggest cover crop improvements in soil nutrient cycling in citrus row middles can be observed during the first three years of treatment, and cover crops promote microbial gene abundance linked to improved soil health. We now have additional trials underway in groves with younger trees (8-10 years and newly planted). Projects are also underway to better understand how to quantify cover crop improvements to soil carbon storage and nitrogen availability, as well as how we can optimize the practice (e.g. different cover crop species and mixes).

Source: Keeping Florida Citrus Growers Informed. Aug 2023, pg. 18. UF/IFAS CREC.
Trunk Injection and Wounding

Researchers: Ute Albrecht, Leigh Archer

Contact: Ute Albrecht, ualbrecht@ufl.edu UF/IFAS SWFREC

Take Home Message:
- Trunk injection causes injury.
- Wounds heal faster during spring and summer.
- Care should be taken to minimize injection damage.

Summary: Trunk injection is an alternative technique for applying crop protection materials. This technology has now been approved to deliver oxytetracycline (OTC) for huanglongbing (HLB) management in Florida. Injections cause injury and best practices need to be established to minimize injection-induced tree damage. We injected 5-year-old 'Valencia' trees with water or OTC to measure seasonal differences in the rate of uptake, wound closure, and internal wound compartmentalization. Wounds closed faster when trees were injected during spring or summer (when trees are metabolically more active) than during fall or winter. OTC injection delayed wound closure compared to water injection. When using water, all wounds were closed within a few months after injection. When using OTC, it took up to one year after injection for the wounds to fully close. Unlike humans and animals, trees do not heal but compartmentalize wounds to prevent spread of decay and dysfunction. We found that citrus trees can effectively compartmentalize wounds when injecting water, but OTC impedes this process. This is evidenced by a large area of discoloration inside the trunk. Whether this will affect trees negatively in the long-term is still unknown. Nonetheless, the new (sap) wood formed during the next growth cycle is healthy, and fruit yield and soluble solids content are consistently improved after OTC injection. The benefits of trunk injections of OTC may therefore outweigh the risk associated with this technology under the current production conditions. We found no benefits associated with the application of wound treatments such as pruning sealants or fungicides.


Injection wound (A). Longitudinal (B) and cross section (C) through citrus trunk after OTC injection. Note the discoloration of the wood.
Individual Protective Covers and Management of Soilborne Pests

Researchers: Larry Duncan, Fernando Alferez, Jude Grosser, Kim Bowman, Lukasz Stelinski, Lauren Diepenbrock

Contact: Larry Duncan, lwduncan@ufl.edu UF/IFAS CREC

Take Home Message:
- There is preliminary evidence for tolerance to sting nematode in some experimental rootstocks.
- Metagenomic methods may reveal interactions between soil properties and soil organisms that modulate root weevil abundance.
- Frequent application of EPN to discrete area at the base of the tree may improve efficacy compared to infrequent undercanopy coverage.

Summary: Following five months exposure to sting nematode in the greenhouse, the ratio of infested/non-infested root mass for the four most ‘tolerant’ of 16 UF rootstock lines was five-fold that of the four least tolerant lines. All of the most tolerant lines were derived from crosses between the same tetrazygotic parents. In a second trial, seven USDA hybrid rootstocks (trifoliate orange crossed with pumelo or mandarin parents) exhibited no root reduction, whereas two non-hybrid conventional rootstocks (sweet and sour orange) experienced a 29% reduction of fibrous roots compared to plants not exposed to nematodes. Validation of the results of both experiments is ongoing using the most and least tolerant lines in both trials and several conventional rootstocks. Additional trials were initiated to evaluate several of the most and least tolerant lines for sting nematode resistance (inability to reproduce) in addition to tolerance (ability to thrive despite nematode ability to reproduce). Ninety-four pairs of ground traps and Tedders traps were installed on a grid pattern in a 5-acre grove infested with Diaprepes root weevil. During 2022 the pattern of weevil abundance was significantly associated with the tree mortality pattern in the grove. We are currently measuring the patterns of soil physical properties and food webs to discover additional associations with the weevil pattern that might reveal potential cultural integrated pest management (IPM) tactics. In addition, entomopathogenic nematodes (EPN) have been applied monthly to a subset of trees that were either protected or not from citrus psyllid and Diaprepes root weevil for two years after planting.

May 2024
OJ Break

May 15, 2024
10:00 am to 12:00 pm

Managing Soilborne Pests & Latest OTC Injection Results and Other Research Updates

9:45 am  Check-in, BHG Citrus Hall

10:00 am  Managing Soilborne Pests with Physical Barriers
Dr. Larry Duncan - UF/IFAS CREC

11:00 am  The Latest OTC Injection Results and Other Research Topics
Dr. Ute Albrecht - UF/IFAS SWFREC

12:00 pm  Lunch - Sponsored by Jay Dugger and Helena Agri-Enterprises LLC

Pre-registration is required by Monday, May 13, 2024
use the following link:
https://ufl.qualtrics.com/jfe/form/SV_4VdqokOE5yVS0ei
Or Contact Joy Spencer to register 863-519-1041

2.0 RUP CEUs in Private, Ag Tree, Ag Row, and Demo & Research will be available.
2.0 Pest Management Certified Crop Advisor CEUs will be available.

An Equal Opportunity Institution. UF/IFAS Extension, University of Florida, Institute of Food and Agricultural Sciences, Andrea D. Johnson, dean for UF/IFAS Extension. Single copies of UF/IFAS Extension publications (excluding 4-H and youth publications) are available free to Florida residents from county UF/IFAS Extension offices.

In accordance with the provisions of ADA, auxiliary aids and services will be provided upon request with a 10-day notice. Contact Joy Spencer at 863-519-1041. This material is available in an alternate format upon request.
GENERAL STANDARDS PESTICIDE CORE EXAM PREP. TRAINING AND CEU'S TRAINING

LOCATION: UF/IFAS EXTENSION POLK COUNTY (1702 S HOLLAND PKWY, BARTOW, FL 33830)

HOURS: 8:30AM - 3:00PM (TESTING FROM 1:00PM – 3:00PM)

DATE: JUNE 12, 2024

PHONE: 863-519-1049

COST: $10.00

CEU: 4 CORE (487 OR 482)

INSTRUCTOR: LUIS O. RODRIGUEZ, UF/IFAS SMALL FARMS AND PESTICIDE EDUCATION AGENT, POLK COUNTY.

REGISTRATION AT:


The General Standards Core Pesticide Exam covers basic pesticide application safety. This test is required to obtain a category license under Florida Statutes Chapter 487.

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For the production of crops, livestock, or other agricultural products that are entirely on property owned by the applicator, or land leased by the applicator.

- **Location:** UF/IFAS Extension Polk County (1702 S Holland Pkwy, Bartow, FL 33830)
- **Hours:** 8:30am-3:00pm (Testing is from 1:00 pm – 3:00 pm)
- **Date:** June 20, 2024
- **Phone:** 863-519-1049 or 863-519-1041
- **Cost:** $15.00 (Lunch included)
- **CEUs:**
  - 1 CORE 487 or 482
  - 3 Private applicators, 3 Ag Row Crop, or 3 Ag Tree
- **Instructor:** Luis O. Rodriguez, UF/IFAS Small Farms and Pesticide Education Agent, Polk County.

**Registration at:**

The Private Applicator Pesticide License is for people who work:
For the production of crops, livestock, or other agricultural products that are entirely on property owned by the applicator, or land leased by the applicator.

The Row Crop Applicator Pesticide License is for people who work:
Production crops (not trees): include row crops, grains, forage, vegetables, small fruits not produced on trees, pastures (not for sod production) and other fallow agricultural land. Use of RUP fumigants requires a “Soil and Greenhouse Fumigation” license.
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