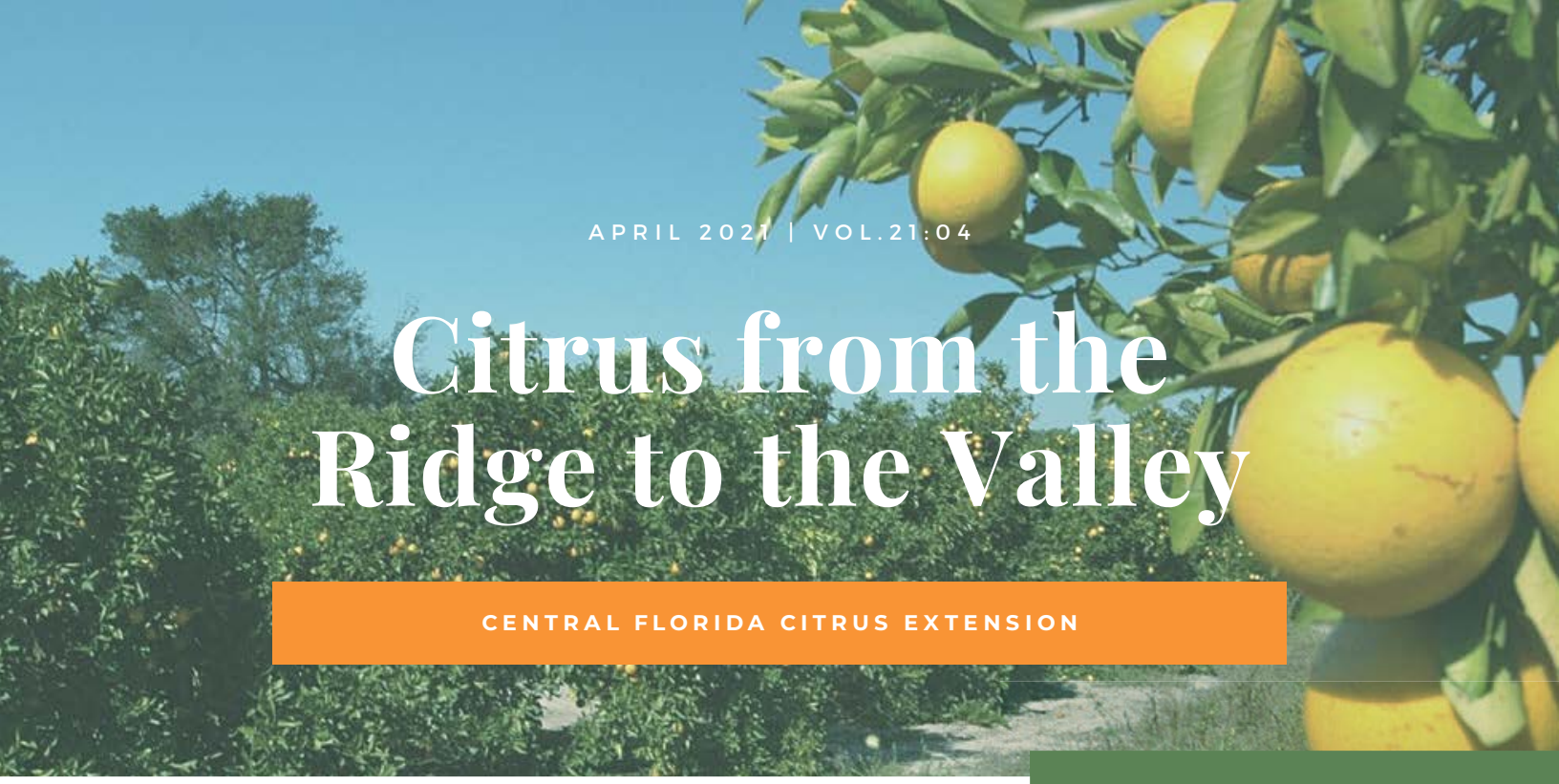

APRIL 2021 | VOL.21:04

Citrus from the Ridge to the Valley

CENTRAL FLORIDA CITRUS EXTENSION

2021 Florida Citrus Growers' Institute

The 2021 Florida Citrus Growers' Institute will be held on Tuesday April 6, 2021. Normally, we hold this program at the South Florida State College campus in Avon Park. However, due to the COVID restriction, this year's event will be a live virtual Zoom webinar from 8:30am-12pm. This year's program will focus on insect, nematode, and weed management in citrus.

Speakers for this year's program are:
Dr. Lukasz Stelinski - ACP control
Dr. Larry Duncan - Nematode management
Dr. Jawwad Qureshi - ACP biological control
Dr. Lauren Diepenbrock - Lebbeck mealybug management
Dr. Fernando Alferez - Individual plant covers update
Dr. Ramdas Kannisery - Weed management strategies

On the following page of this newsletter you can view the agenda for the program. There will be 3 Restricted Use Pesticide License CEUs available for Private, Ag Tree Crop, and Demo & Research. There will also be 3 Certified Crop Advisor CEUs available in Pest Management.

To register for this and other UF/IFAS Citrus Extension Agent meetings, visit the UF/IFAS Citrus Agent's website: https://citrusagents.ifas.ufl.edu/oj-break/.

UF | IFAS Extension
UNIVERSITY of FLORIDA

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2021 Florida Citrus Growers' Institute

Program Agenda
Tuesday, April 6, 2021

8:30 AM - Sign into Zoom Webinar

8:55 AM - **Welcome and Introductions**
Moderator: Mr. Chris Oswalt, CES, Bartow, FL

9:00 AM - **Evaluating Nominal Thresholds as Decision Making Guides for Psyllid Sprays** - *Dr. Lukasz Stelinski,* UF/IFAS CREC

Overview: We investigated the potential of a usable threshold to increase sustainability of Asian citrus psyllid (ACP) management in citrus under conditions of high Huanglongbing (HLB) incidence.

9:30 AM - **Managing Root Pests and Pathogens in Young Trees with HLB** - *Dr. Larry Duncan* , UF/IFAS CREC

Overview: Ongoing research seeks to understand whether managing nematode and root weevil populations in HLB damaged trees is profitable.

9:55 AM - **Polling Question (RUP CEU's)**

Moderator: Ms. Ajia Paolillo, CES, Arcadia, FL

10:00 AM - **Applied Biological Control Research for Managing Asian Citrus Psyllid** - *Dr. Jawwad Qureshi,* UF/IFAS SWFREC

Overview: Discussion on some of the work that we have been doing on lacewings, ladybeetles and parasitoid Tamarixia radiata.

10:30 AM - **Incorporating Lebbeck Mealybug Management with Current Management Programs** - *Dr. Lauren Diepenbrock,* UF/IFAS CREC

Overview: Presentation of the most recent information that we have been gathering on the biology and management of the recently established and rapidly spreading pest, the Lebbeck mealybug.

10:55 AM - **Polling Question (RUP CEU's)**

Moderator: Dr. Mongi Zekri, CES, LaBelle, FL

11:00 AM - **Individual Protective Covers (IPC's) Influence on tree performance, fruit production, pests, and diseases** - *Dr. Fernando Alferez,* UF/IFAS SWFREC

Overview: Presentation on how IPCs prevent HLB and how changed growth patterns in young citrus trees affect fruit set and quality. Also show how other pests and diseases of concern are affected by the IPCs and the trees' response to the new condition once the IPC's are removed.

11:30 AM - **Keeping Weeds in Check - Updates for Tree-Rows and Row-Middles** - *Dr. Ramdas Kanissery,* UF/IFAS SWFREC

Overview: The use of glufosinate-ammonium for post-emergence weed control and how to achieve the best results with this active ingredient, along with weed management in row middles using herbicides for chemical mowing and cover crops.

11:55 AM - **Polling Question (RUP CEU's)**

12:00 PM - **Adjourn**

CES: Cooperative Extension Service

CREC: Citrus Research & Education Center, Lake Alfred, FL

SWFREC: Southwest Florida Research & Education Center, Immokalee, FL

UF/IFAS: University of Florida, Institute of Food and Agricultural Sciences

CEU's will be available for the Restricted Use Pesticide License & for Certified Crop Advisors

FLORIDA CITRUS GROWERS' INSTITUTE

Conducted by

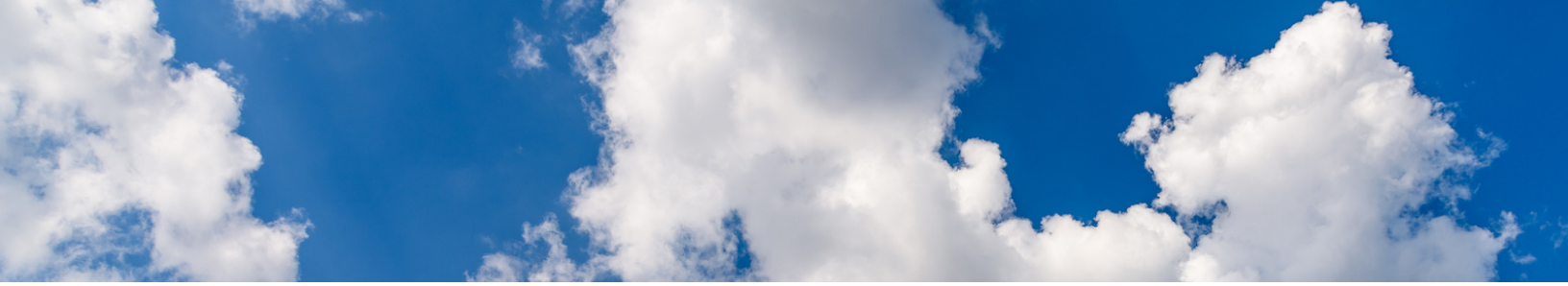
University of Florida, IFAS Extension

Zoom Webinar

April 6, 2021

Register at:

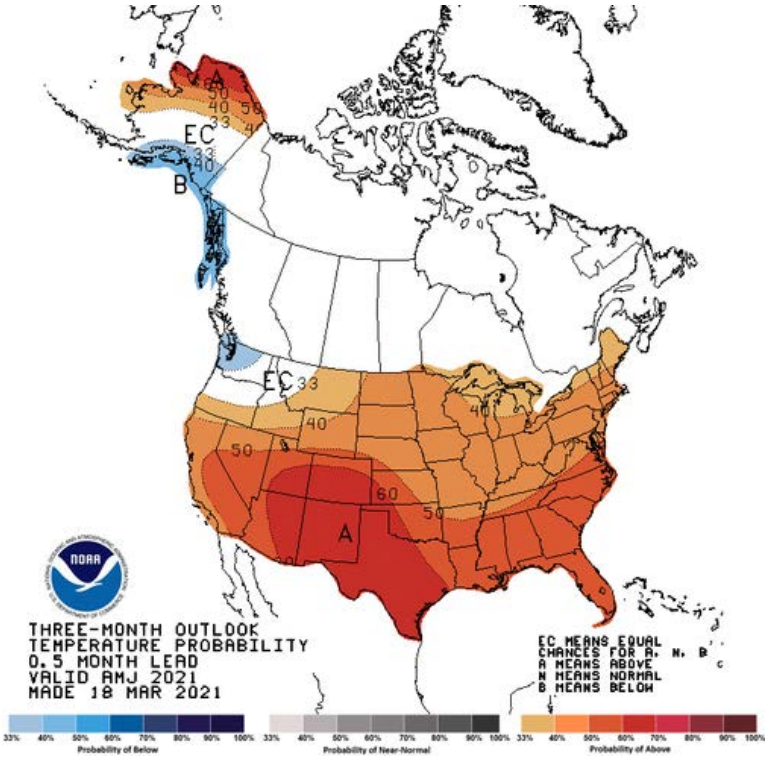
https://citrusagents.ifas.ufl.edu/oj-break/

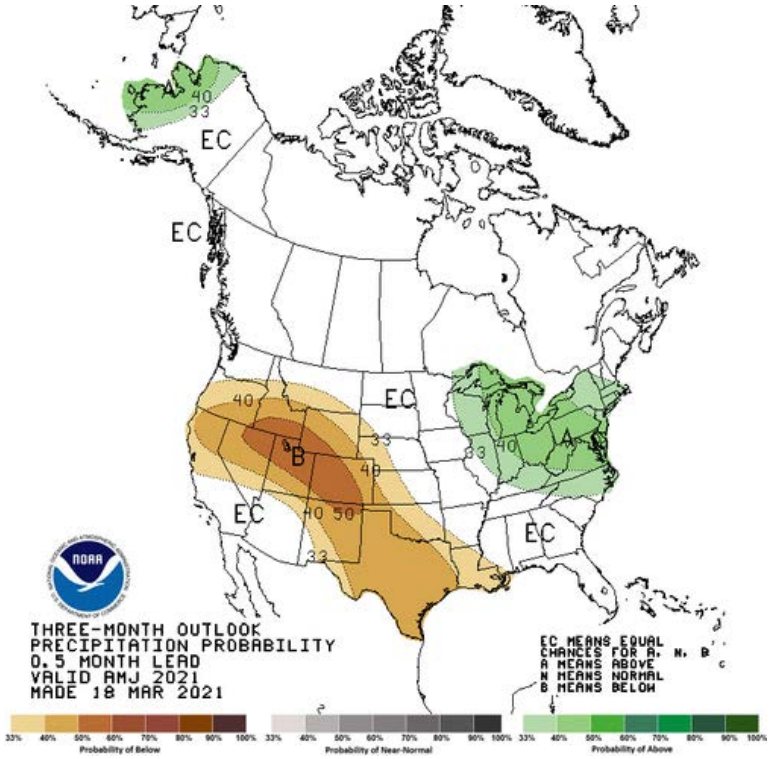


Weather Outlook

BY CHRIS OSWALT

Spring is here and the weather, well hasn't changed much from the cool to very warm and the mostly dry. According to the National Weather Service's (NWS) Climate Predication Center (CPC) forecast, there will be a 60% chance of transitioning from a moderate La Nina phase to a neutral condition during the spring (April to June). That translates into, on average warm and dry conditions evolving into an equal chance of above or below average rainfall going into the summer. Dry weather with the lack rainfall (early on) should be a reminder to growers to actively and intensively manage their irrigation systems during the period of fruit set and fruit enlargement. Looking ahead to the fall (September to November) the lower than average confidence in the El Nino forecast calls for a 45 - 50% chance for La Nina and a 40- 45% chance for neutral conditions with the balance a low chance for El Nino this fall.





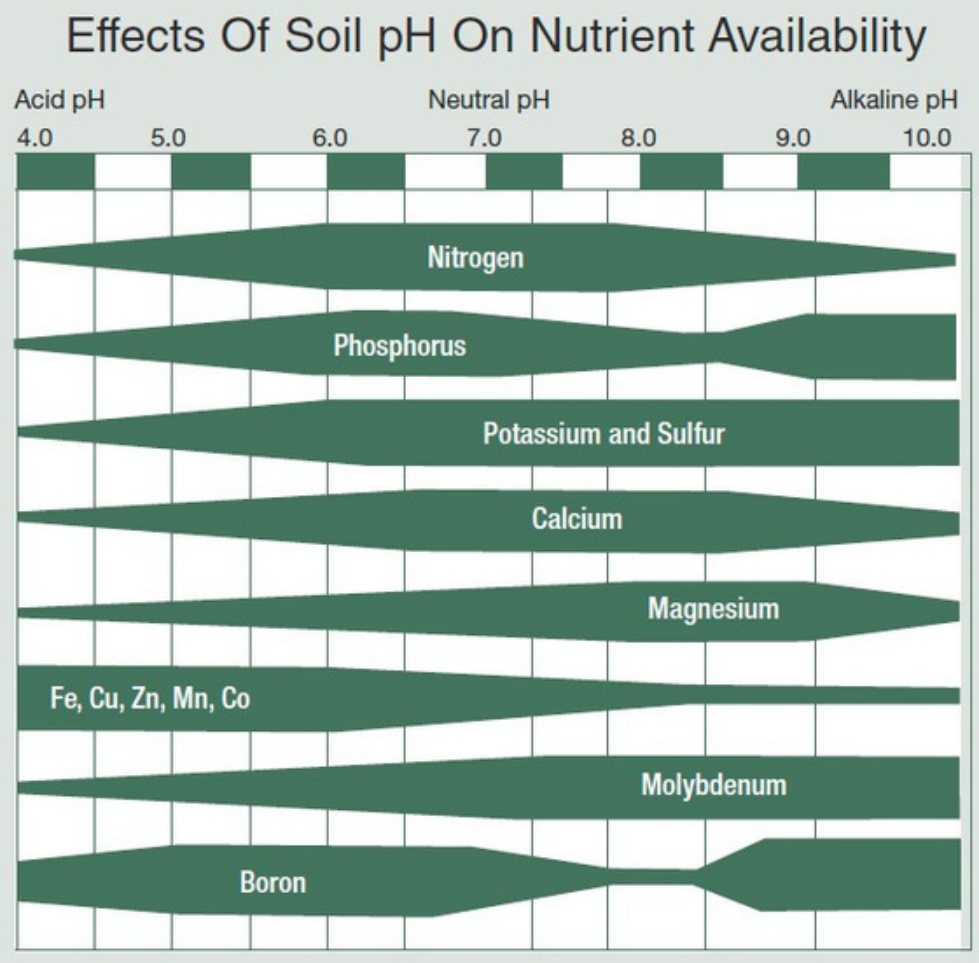
A Soil pH Discussion Considering Macronutrients

BY CHRIS OSWALT

We know the influence of soil pH on nutrient availability. This month we will further discuss the specific fate of nitrogen, phosphorus, and potassium in soils that have elevated pH values. This discussion also assumes that these effects would be similar to conditions in the wetted zone where micro-sprinkler irrigation has raised soil pH.

Soil pH can affect several reactions involving nitrogen in the soil solution and the efficient use of this nitrogen by plants. Nitrification, the conversion of ammonium to nitrate is done by soil bacteria and is most rapid in soils with a pH between seven and eight. Nitrification in the soil is nearly zero at a soil pH of five. So simply put, if a grower is using ammonium nitrate as a nitrogen source, then at a pH between seven and eight, the ammonium would be rapidly converted to nitrate. This would result in the nitrogen applied being significantly susceptible to leaching due to the quick conversion of the ammonium nitrogen to the more soluble nitrate. At a lower soil pH, the ammonium in this ammonium nitrate would be more slowly converted to nitrate due to the reduced activity of soil bacteria. This reduction in the rate of ammonium to nitrate conversion would result in more of the nitrogen remaining in the ammonium form that is less susceptible to leaching.

Also, soils with elevated pH values can cause the loss of nitrogen due to the volatilization of ammonia (NH_3) in the atmosphere. This volatilization of nitrogen occurs when ammonium sources of nitrogen are applied to a soil surface with pH values greater than 7. In the management of nitrogen applied to soils, when pH values are above seven, there is a greater loss of nitrogen when ammonium forms of nitrogen are used.



A Soil pH Discussion Considering Macronutrients, contd.

BY CHRIS OSWALT

Growers can better manage these potential ammoniacal losses of nitrogen by lowering the soil pH to slow the conversion to nitrate and reduce volatilization. Volatilization can also be reduced by incorporating this ammoniacal nitrogen in the soil by cultivation or irrigation. Using irrigation to incorporate ammonium forms of nitrogen in a high pH soil can result in additional leaching due to the faster conversion of this ammonium to nitrate by soil bacteria.

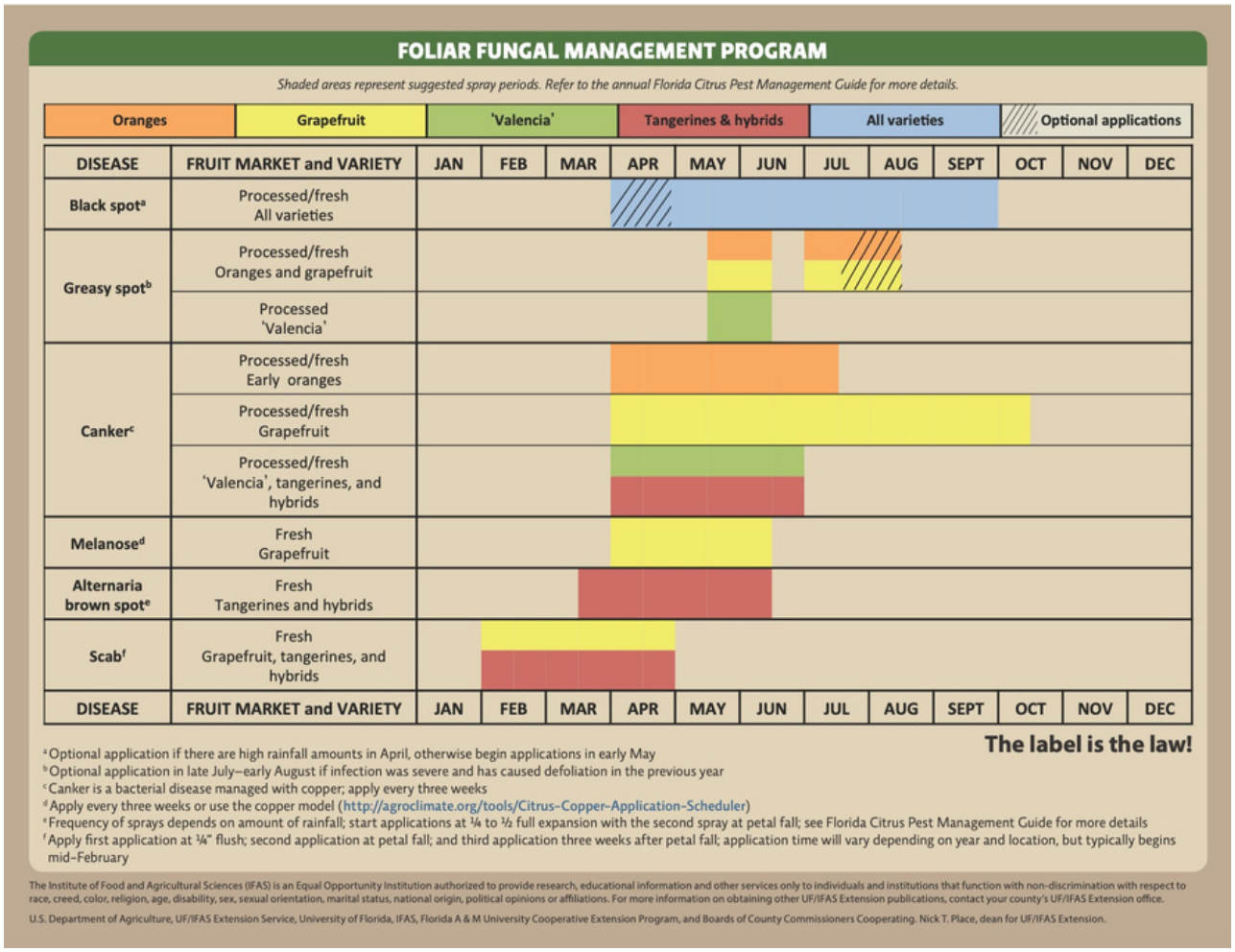
The availability of phosphorus in calcareous soils is also limited. The amount of phosphorus in soil is closely related to the availability of this phosphorus to plants. In higher pH soils phosphorus reacts with soil calcium resulting in a decreased solubility of phosphorus (a process called phosphorus fixation). In this situation, the availability of phosphorus is determined by the amount of soluble phosphorus applied and any phosphorus that is released from that fixed phosphorus. Application of soluble phosphorus in these soils will only be available to plants for a short time due to the rapid phosphorus fixation at high soil pH. In this situation lowering the soil pH will decrease the amount of fixed phosphorus, resulting in the availability of additional previously insoluble phosphorus.

Potassium availability in high pH soils is difficult to achieve due to the occupation of the nutrient holding sites of the soil particle surface by excessive calcium. The occupation of these exchangeable soil particle sites will suppress the uptake of potassium by citrus trees due to competition between calcium and potassium for the exchangeable soil particle sites. Although potassium would normally be available for plant uptake at a higher soil pH, this aforementioned competition with soil calcium can negate this availability. Lowering the soil pH in this situation will lead to an overall reduction of the exchangeable sites of the soil particle that could be occupied by potassium (K^+) or other basic cations (calcium and magnesium). This would result in the release of potassium and other basic cations making it more likely leaching could become more of a factor affecting the soil levels of these nutrients.

Citrus Fruit Fungal Diseases

BY CHRIS OSWALT

Dry weather conditions are good news for growers and their battle with citrus fruit fungal diseases. Many of our, if not nearly all citrus fruit fungal diseases greatly benefit from rainfall in their ability to spread and infect citrus fruit causing fresh fruit grade lower damage. These diseases are many times associated with certain citrus varieties being very specific in the varieties they infect and affect. Here in Florida fruit fungal diseases that are often times problematic in the early spring would be melanose, scab and alternaria brown spot, along with citrus canker. In the summer period greasy spot would become more of a problem along with lingering canker infections which last through the growing season into the fall. In order to control these early fruit fungal diseases it is important to schedule your applications of fungicides at the proper time for optimal control. I have attached a table outlining a fruit fungal management program developed from the Florida citrus production guide. This table lists the susceptibility of specific varieties to these fungal diseases and the timing of these fungicide applications. Scab affects fresh grapefruit, tangerines, and tangerine hybrids, while alternaria is limited to mostly fresh tangerines and tangerine hybrids including Minneola tangelos. Melanose will affect all fresh citrus varieties and the severity will be related to the amount of recently killed twigs in the tree canopy. Citrus canker will affect all varieties (fresh and processed) and if you have it, is an every present threat during the growing season, particularly as we head into late summer with uncontrolled citrus leafminer populations. Greasy spot rind blotch affects predominately fresh grapefruit, although all varieties (fresh and processed) are susceptible to foliar infection. You will find specific guidance on the recommended fungicides for use on these diseases in the 2000-21 Florida citrus production management guide (https://crec.ifas.ufl.edu/resources/production-guide/).



FOLIAR FUNGAL MANAGEMENT PROGRAM

Shaded areas represent suggested spray periods. Refer to the annual Florida Citrus Pest Management Guide for more details.

Oranges | Grapefruit | 'Valencia' | Tangerines & hybrids | All varieties | Optional applications

DISEASE	FRUIT MARKET and VARIETY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
Black spot[a]	Processed/fresh All varieties												
Greasy spot[b]	Processed/fresh Oranges and grapefruit												
	Processed 'Valencia'												
Canker[c]	Processed/fresh Early oranges												
	Processed/fresh Grapefruit												
	Processed/fresh 'Valencia', tangerines, and hybrids												
Melanose[d]	Fresh Grapefruit												
Alternaria brown spot[e]	Fresh Tangerines and hybrids												
Scab[f]	Fresh Grapefruit, tangerines, and hybrids												
DISEASE	FRUIT MARKET and VARIETY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC

The label is the law!

[a] Optional application if there are high rainfall amounts in April, otherwise begin applications in early May
[b] Optional application in late July–early August if infection was severe and has caused defoliation in the previous year
[c] Canker is a bacterial disease managed with copper; apply every three weeks
[d] Apply every three weeks or use the copper model (http://agroclimate.org/tools/Citrus-Copper-Application-Scheduler)
[e] Frequency of sprays depends on amount of rainfall; start applications at ¼ to ½ full expansion with the second spray at petal fall; see Florida Citrus Pest Management Guide for more details
[f] Apply first application at ¼" flush; second application at petal fall; and third application three weeks after petal fall; application time will vary depending on year and location, but typically begins mid-February

Seeking Grower Insight on Postbloom Fruit Drop

DR. MEGAN DEWDNEY, CREC

As part of a research program on postbloom fruit drop (PFD), my student André Gama and I would like to gather more information about how frequently PFD is problematic for growers. We know that in most years, the majority of growers do not have a problem, but some blocks can be troublesome. PFD is often location and cultivar specific so we are looking for your help in gathering this information for as many years as you can remember. I know some growers have long memories and we would be very grateful if you could assist us determine when PFD was problematic other than the major outbreak years. The survey will take less than 5 minutes!

Survey - [Epidemics of Postbloom fruit drop of citrus (google.com)]

PHOTO CREDIT UF/IFAS

BMP's for Florida Citrus – Integrated Pest Management

BY AJIA PAOLILLO

This article is one in a series that explores the Florida Department of Agriculture's (FDACS) Best Management Practices (BMP) program for Florida citrus. These articles also explain the various BMPs that can be implemented in Florida citrus production. This article will discuss Integrated Pest Management and show examples of how it is used in Florida citrus.

Integrated Pest Management (IPM) is the practice of using a combination of multiple pest control methods to achieve a successful management program. The goal of IPM is to control pests using methods that are economical for the grower along with being environmentally conscious. Scouting and population monitoring will allow you to know when action must be taken against a particular pest. This is called the action threshold. Once a pest is detected and action is needed, it is extremely important to accurately identify the pest. This is the first step to effective pest control. With proper identification, you will gain knowledge about the pest's life cycle, behavior, hosts, food sources, and potential predators. This information will help you decide which pest control methods will be most effective for the pest you are dealing with. There are various control methods that can be used in IPM: Cultural, Biological, Mechanical, Genetic, and Chemical.

Cultural controls are actions growers can take either before the planting or after, and involve creating an unfavorable environment for the pest. This includes site selection, using disease-free plant material, and using planting designs that allow for good air circulation. The use of buffers around the grove can encourage beneficial insect populations and help to manage unwanted weeds and insects from entering the grove. Sanitation is a cultural control to help prevent the introduction or spread of a pest population. An example of this would be scouting and removing vine seedlings before they become established in the grove.

BMP's for Florida Citrus – Integrated Pest Management, contd.

BY AJIA PAOLILLO

Biological control uses the pest's natural enemies to suppress the population. Beneficial insects feed on the pests keeping them at an acceptable level that does not trigger the action threshold. Keep in mind that in order for biological control to be sustainable, some level of the pest population must be present to serve as a food source. Some biological control populations may be naturally available in the area or may be approved to be released in certain areas. For instance, Tamarixia radiata is a parasitic wasp that lays it's eggs under ACP nymphs. The wasp larva feeds on hemolymph, and eventually kills the nymph (Mann and Stelinksi, 2010). Populations of Tamarixia radiata are released in areas of Florida for control of the ACP.

Mechanical controls keep pests from coming in contact with the plant. An example of this would be the individual plant covers, which keep the Asian citrus psyllid from feeding on the young citrus tree. Other mechanical controls would be traps, or other control devices that do not use a pesticide component.

Genetic control would be the use of plant material that is tolerant or resistant to pests. This type of control relies on natural host resistance to manage certain pests. Using a rootstock that is resistant or tolerant to nematodes or phytophthora would be an example of genetic control. The plant itself has defenses against these pests and are not highly susceptible.

Chemical control utilizes pesticides that can offer quick control of the pest. This method may be more cost effective than the other methods based on the pest and level of control you are trying to achieve. When using chemicals be sure to always follow the label directions appropriately. Some pesticides may have adverse effects on beneficial insects and other arthropods like honey bees or those used for biological control.

Before choosing pest control methods, decide what level of control you are trying to achieve. There are three goals of pest management: prevention, eradication, and suppression. Prevention should be attempted first when dealing with a potential pest problem. However, in some cases environmental conditions or the rapid spread of a pest can cause prevention methods to be unsuccessful. Many pests are also difficult to eradicate and population numbers may need to be suppressed to a level that does not cause economic damage. Whichever pest management goal you are trying to achieve, the implementation of an IPM program will allow you to use different methods to combat your target pest.

If you would like more information on the FDACS BMP program, please contact your area FDACS representative or your Extension agent. You may also refer to the FDACS manual "Water Quality/Quantity Best Management Practices for Florida Citrus"
https://www.fdacs.gov/ezs3download/download/25410/516289/Bmp_FloridaCitrus2012.pdf

References:

Mann, R.S. and L.L Stelinski. 2010. An Asian Citrus Psyllid Parasitoid Tamarixia radiata (Waterston) (Insecta: Hymenoptera: Eulophidae). University of Florida. EDIS Publication #EENY475.

Remote – Produce Safety Alliance Grower Trainings

A virtual course for fruit and vegetable growers and packers who fall under the FSMA Produce Safety Rule.

Online training Information Due to the COVID-19 pandemic, this training is being offered temporarily via remote delivery. In order to participate, individuals must have video and audio capability, and will be required to have both operating during the entire training. It is a Produce Safety Alliance requirement that participants are monitored in order to verify participants' attendance and engagement. Participants will only be eligible for the PSA/AFDO Certificate of Course Completion if they are present for all modules of the course. The training will take place via Zoom, which does not require special software. Zoom does have system requirements, which can be found here: https://support.zoom.us/hc/en-us/articles/201362023- System-Requirements-for-PC-Mac-and-Linux . Please make sure that your system meets the requirements for Zoom meetings.

Important Notes for registration: The Produce Safety Rule Grower Training Manual v1.2 will be mailed to registrants prior to the training – please be sure that the shipping address you provide at the time of registration is current (especially if working from home or remotely) and capable of receiving packages. Please use an email address that you can be reached at, as evaluations and a Zoom link for the training will be sent in a confirmation email prior to the training date.

Questions: For general registration questions, contact Sarah McCoy at sarahmccoy@ufl.edu. For questions about the training, contact Taylor Langford at taylorlangford@ufl.edu.

Dates and registration links

April 20th- 22nd, daily from 2:30 pm to 5:30 pm
http://bit.ly/3a936vM

May 25th- 27th , daily from 2:30 pm to 5:30 pm
https://bit.ly/3tWK5VE

June 15th - 17th, daily from 2:30 pm to 5:30 pm
https://bit.ly/3sAIt3F

UF Food Safety Virtual Office Hours

The UF Food Safety Team has put together the following upcoming spring event. More information about the event can be found at the registration page, and as always, you can reach out to one of us listed on the flyer for questions.

UF Food Safety Virtual Office Hours (all 3:30-4:30 PM ET)
May 6, 2021 - Registration: https://ufl.zoom.us/webinar/register/WN_DD2rQmoUToi1jSWIFfL4qQ

2021

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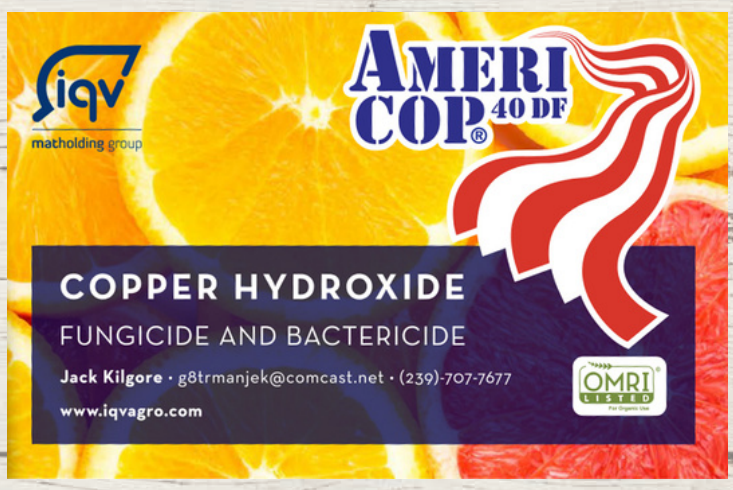

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If you would like to be a sponsor, please contact Chris Oswalt: wcoswalt@ufl.edu or Ajia Paolillo: ajiacunningham@ufl.edu