

Citrus Notes

**Polk County Extension Service**

PO Box 9005, Drawer HS03 • Bartow, FL 33831-9005
(863) 519-8677, Ext. 108 • wcoswalt@ufl.edu

Hillsborough County Extension Service

5339 County Road 579 • Seffner, FL 33584-3334
(813) 744-5519, Ext. 131

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As we enter the late summer there are a number of educational opportunities for growers. The Citrus Expo and Annual Citrus Packinghouse Day are on the immediate horizon. In between summer oil sprays would be a good time to pull a citrus leaf sample for nutritional analysis. Current fertilizer prices make this practice a great return on your investment. Don't forget that we are entering the first half of the 2008 hurricane season. The official forecast is included. In the Pesticide Information Section there is an article on citrus greening in Louisiana and the psyllid at the Mexican border. Also in this section there is an abstract on psyllids and guava. For the latest UF/IFAS Citrus Extension information including an audio broadcast of this newsletter go to:

<http://citrusagents.ifas.ufl.edu/>

*Enjoy the issue,*

Chris Oswalt
Citrus Extension Agent
Polk/Hillsborough Counties
863-519-8677 extension 108
P.O. Box 9005, Drawer HS03
Bartow, FL 33831-9005



Citrus Expo 2008

The annual Citrus Expo will be held at the Lee Civic Center in Ft. Myers on August 20-21, 2008. This year the seminar theme is "Seeking Profitability Through Interim Innovations". You will find an enclosed brochure and registration form if you wish to attend this years Expo.

Citrus Packinghouse Day

Mark your calendars for Citrus Packinghouse Day on September 11th at the Citrus Research and Education Center in Lake Alfred, and the Indian River Postharvest Workshop on September 16th at the Indian River Research and Education Center in Ft. Pierce.

This year's programs will not only include presentations updating the latest information on citrus canker related to fresh citrus, but also on the development of new fresh citrus varieties, national efforts to create commodity specific GAPs, changes in the maximum residue limits for important export markets, practices to reduce peel breakdown on fresh grapefruit and research into the possible use of laser labeling on citrus. For more information, contact Mark Ritenour at 772-468-3922, ext. 167 or visit <http://postharvest.ifas.ufl.edu>.

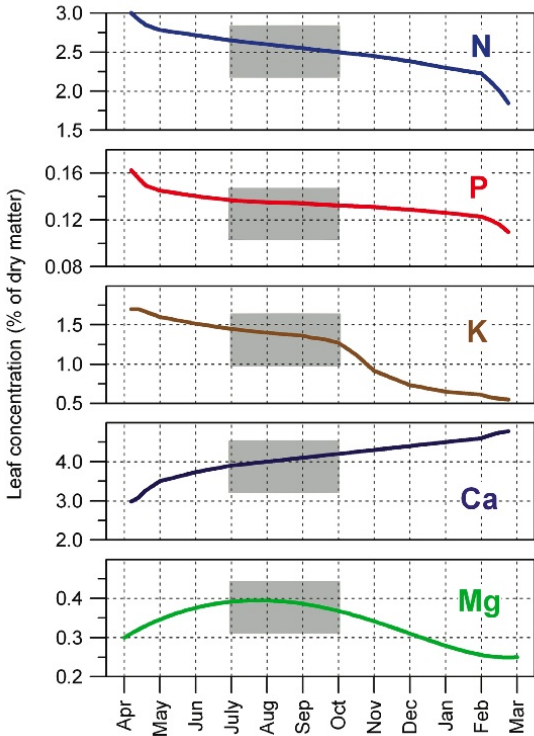


Citrus Leaf Analysis

With fertilizer prices topping \$500/ton, now it is more important that ever to implement a comprehensive citrus leaf analysis program. If you have been using leaf analysis to monitor and evaluate your fertilizer program, you already have the necessary information to make adjustments in your citrus nutrition program. If you have not been doing leaf analysis on a consistent schedule, then now would be a great time to quantitatively measure the effectiveness of your nutrition program. So how do we go about doing this?

First, you need to determine the smallest area that you are willing to manage from a fertilizer application standpoint. If you fertigate and the system runs the entire grove, then this would be you management area. In larger groves that are divided into blocks you can do one or more leaf analysis per block based on the uniformity of these blocks. In some groves these blocks may contain different varieties and/or rootstocks that have varying fertilizer requirements. In this case the leaf analysis can be taken from blocks of different varieties and/or rootstocks. There may also be variations in soil types that affect tree nutritional status and these areas may need to be addressed separately. The important key here is to select areas for leaf analysis based on the uniformity (including the same fertilizer program) of the grove or block.

The second step is to take the leaf sample during the proper time of the year. Mineral nutrition in citrus leaves will change with leaf age. Our current information indicates that the optimum time to collect samples would be 4 to 6 months after the spring flush. This will generally correspond with a time-period from the end of June through the first of October, depending on the timing of the spring flush.



Leaf nutrient concentration levels over time. From: *Nutrition of Florida Citrus Trees SL 253*.

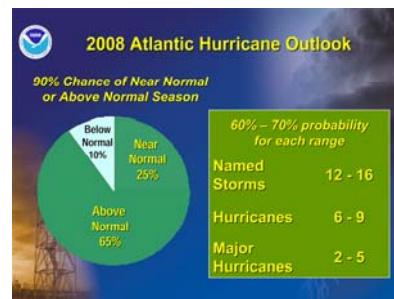
It is equally important to select the proper type, location and number of leaves. One hundred total leaves from 15 to 20 uniform trees in each management area should be selected as a sample. These leaves should be the 4 to 6 month old spring flush leaves from non-fruiting twigs. These leaves will generally be the smaller leaves, and depending on the time of year, should have few disease infections (specifically greasy spot).

Once the samples are collected, if you are only interested in macronutrients then there is no need to surface wash the leaves. If you are

running both macro and micronutrient analysis on the sample, then you should surface wash the leaves before they dry out. Then place these leaves in a paper bag labeled with your unique identification number for shipment or delivery to the testing lab. If the trees have been sprayed with micronutrients, then the results of this analysis would be inconsistent making it difficult to ascertain leaf micronutrient levels.

Results from a leaf analysis can be used to make decisions on the need to adjust your citrus nutrition program. This analysis, along with information collected from previous years' leaf analysis, can also be used to quantitatively compare changes in the nutritional status of the trees from year to year. Information on the changes in nutritional status of the trees can be especially important if significant changes in the fertilizer program have occurred in the past few years.

Additionally, if you are interested in a copy of *SL 253 Nutrition of Florida Citrus Trees*, we have a limited supply here in the Bartow Office.



**NOAA
2008
Hurricane
Forecast**
(Credit: NOAA)

The Climate Prediction Center outlook calls for considerable activity with a 65 percent probability of an above normal season and a 25 percent probability of a near normal season. This means there is a 90 percent chance of a near or above normal season.

The climate patterns expected during this year's hurricane season have in past seasons

produced a wide range of activity and have been associated with both near-normal and above-normal seasons. For 2008, the outlook indicates a 60 to 70 percent chance of 12 to 16 named storms, including 6 to 9 hurricanes and 2 to 5 major hurricanes (Category 3, 4 or 5 on the Saffir-Simpson Scale).

An average season has 11 named storms, including six hurricanes for which two reach major status.

“The outlook is a general guide to the overall seasonal hurricane activity,” Lautenbacher said. “It does not predict whether, when or where any of these storms may hit land. That is the job of the National Hurricane Center after a storm forms.”

Bill Read, director of NOAA’s National Hurricane Center, said, “Our forecasters are ready to track any tropical cyclone, from a depression to a hurricane, which forms in the Atlantic Basin. We urge coastal residents to have a hurricane plan in place before the season begins and NHC will continue to provide the best possible forecast to the public.”

When a storm forms in the tropics – and even before that stage – NOAA forecasters at the Miami-based National Hurricane Center are in continuous monitoring mode – employing a dense network of satellites, land- and ocean-based sensors and aircraft reconnaissance missions operated by NOAA and its partners. This array of data supplies the information for complex computer modeling and human expertise that serves the basis for the hurricane center’s track and intensity forecasts that extend out five days in advance.

The science behind the outlook is rooted in the analysis and prediction of current and future global climate patterns as compared to previous seasons with similar conditions.



“The main factors influencing this year’s seasonal outlook are the continuing multi-

decadal signal (the combination of ocean and atmospheric conditions that have spawned increased hurricane activity since 1995), and the anticipated lingering effects of La Niña,” said Gerry Bell, Ph.D., lead seasonal hurricane forecaster at NOAA’s Climate Prediction Center. “One of the expected oceanic conditions is a continuation since 1995 of warmer-than-normal temperatures in the eastern tropical Atlantic.”

“Americans in hurricane-prone states must get serious and be prepared. Government – even with the federal, tribal, state and local governments working perfectly in sync – is not the entire answer. Everyone is part of the emergency management process,” said FEMA Administrator R. David Paulison. “We must continue to develop a culture of preparedness in America in which every American takes personal responsibility for his or her own emergency preparedness.”

NOAA’s Atlantic hurricane season outlook will be updated on August 7th, just prior to what is historically the peak period for hurricane activity.

Tropical systems acquire a name – the first of which for 2008 will be Arthur – upon reaching tropical storm strength with sustained winds of at least 39 mph. Tropical storms become hurricanes when winds reach 74 mph, and become major hurricanes when winds reach 111 mph.



Pesticide News and Information

Asian Citrus Psyllid on the West Coast and In-Between

The Asian citrus psyllid has been confirmed in three locations in Tijuana, Mexico, only 1.9 miles from the California border. This comes a few weeks after the psyllid and the citrus greening disease it spreads was confirmed in New Orleans. "It's shocking," Joel Nelsen, president of California Citrus Mutual, says about the finds in Mexico. The insects were not discovered by the U.S. Department of Agriculture's Asian citrus psyllid trapping program, he says. Instead, they were picked up by a general pest trapping program. "It's extremely disconcerting for it to be discovered so close to San Diego County, where there's ample enough host plants," Nelsen says. "It's created major activity on our part." Nelsen says the industry is still waiting to hear from the USDA whether the psyllids from Mexico carried the greening bacteria.

The California Department of Food and Agriculture is wrapping up its annual survey for the psyllid and greening and has not detected either pest. Inspectors annually survey about 25 percent of commercial citrus groves, as well as other high-risk areas, such as packinghouses and nurseries, where the pest might enter.

The Louisiana Department of Agriculture and Forestry has an inquisitive New Orleans homeowner to thank for the discovery of the psyllid and citrus greening. She saw an unusual insect on her lime tree and looked it up on the internet. The homeowner then sent a couple of digital images of the pest to a local

Louisiana State University Ag. Center Extension agent, who identified it as an Asian citrus psyllid. The state, working in conjunction with the USDA's Plant Protection and Quarantine (PPQ) division, collected samples of the pest and foliage in late May. The insect identification was confirmed by USDA's facility in Beltsville, MD a few days later, and the USDA confirmed the foliage was positive for citrus greening early in June.

Louisiana and PPQ officials have conducted delimiting surveys within a 1-, 5- and 10-mile radius of the positive tree. In addition, they continue to survey neighboring parishes for the pest and disease. So far, Asian citrus psyllid has been confirmed in Orleans, Jefferson, Plaquemines, and St. Charles parishes. Of the nearly 90 foliage samples that have been sent to Beltsville, about half have come back negative for citrus greening. Hardy says results on the other samples are pending. The only positive greening samples are from the homeowner's lime tree. The infected lime tree had been in the ground for about three years. Before that, it was in a pot. The homeowner originally received the tree as a gift.

As a result of the insect and disease confirmations, Louisiana state agricultural officials have to consider quarantine options. They're leaning toward an interior quarantine where just the counties positive for greening and psyllid would be regulated. They also would have to conduct an eradication program to rid the areas of the psyllid and greening. If Louisiana officials decide against an interior quarantine and eradication, the USDA could impose a statewide quarantine, much like they have with Florida.

Texas has had the Asian citrus psyllid since 2001, and 37 southern counties remain quarantined. But so far, agricultural officials have not detected citrus greening, says Julian Sauls, a professor and Extension horticult-

turalist at Texas AgriLife's research station in Weslaco. "We hope that means that the psyllid that came here didn't have the greening bacterium in its system," Sauls says. "But that's not to say there's a tree somewhere in the state that doesn't have it. We still look every year from here up to Houston, because we don't need [greening]."

Members of Texas Citrus Mutual, Florida Citrus Mutual and California Citrus Mutual recently held a conference and agreed to adopt Florida's citrus health response plan, Nelsen says. They also agreed that more money needs to be allocated toward the fight. That includes funding for additional dog teams to detect possible contraband being brought into California and more inspections at the Arizona border. In addition, they want money put towards developing faster disease detection tests in California. Members agreed that the Asian citrus psyllid is still confined within Texas, and they hope to seek a permanent psyllid eradication program in that state. (*New York Times*, 6/10/08).

Asian Citrus Psyllid and Guava

The Florida Entomological Society held their annual meeting in July 2008. One of the presentations and associated paper was on the effect of guavas on the Asian citrus psyllid. Rather than try to explain the findings, I submit for your consideration the following abstract as printed in the program abstract:

Stelinski, L., E. J. Wenninger, E. Onagbola & D. G. Hall. **Chemical ecology of *Diaphorina citri*.**

Investigations of psyllid behavior in laboratory olfactometers have provided behavioral evidence for a female-produced volatile sex attractant pheromone in *D. citri*. Furthermore, citrus volatiles have been found to attract both sexes of *D. citri*, while

guava volatiles have been found to repel this insect. Five olfactory and at least three mechanosensory sensillar types were characterized on psyllid antennae. Analytical techniques have been used to isolate and identify active compounds from both citrus and guava.

In layman's terms it appears that there has been the discovery of a guava odor that repels psyllids in the laboratory.