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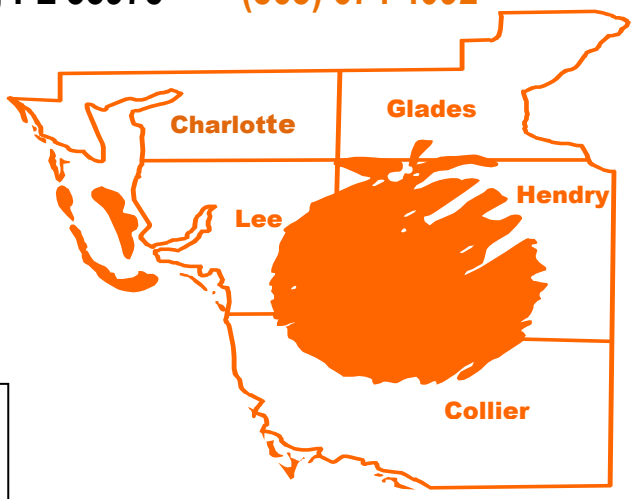
Flatwoods Citrus



Vol. 13, No. 6 June 2010

Dr. Mongi Zekri
Multi-County Citrus Agent, SW Florida

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I M P O R T A N T E V E N T S

2010 FSHS Annual Meeting - June 6-8

Location: The Plantation Inn, Crystal River, FL

Go to: http://www.fshs.org/meetings.htm

2010 Florida Citrus Industry Annual Conference
Date: June 9-11, 2010

Location: Hyatt Regency Coconut Point Resort & Spa, Bonita Springs, FL

Go to: WWW.FLCITRUS MUTUAL.COM

CITRUS EXPO

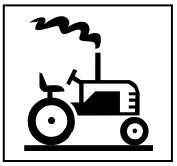
IN FORT MYERS

Wednesday, August 18 &
Thursday, August 19, 2010

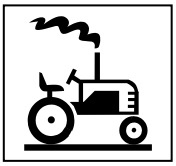
www.CitrusExpo.net

THE TWENTIETH ANNUAL FARM SAFETY DAY HELD ON SATURDAY 22 MAY 2010 WAS A SUCCESS.

A total of 183 people attended the 4 training sessions



Over the past few years, The Farm Safety Day has been proven to be a very effective way in providing an educational opportunity for farm equipment operators and workers.



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SYNGENTA

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AMERICAN AG PRODUCTS CORPORATION
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americanagproducts@earthlink.net

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AGLIME SALES, INC.
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Babson Park, FL 33827-9549
Mobile: 863 287 2925
Agnet # 52925

Nufarm Agriculture USA
Craig Noll
Office-239 549 2494
Mobile-239 691 8060
craig.noll@us.nufarm.com
Gary Simmons
Phone: 772 260 1058

Jay Hallaron
Chemtura Corporation
Phone: 407 256 4667
Fax: 407 523 1097
Cell: 321 231 2277
jay.hallaron@chemtura.com

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Mobile 561-722-4502, Agnet # 33169
trsummersill@msn.com

Stacey Howell
***BAYER* CropScience**
239-272-8575 (mobile)
239-353-6491 (office/fax)
stacey.howell@bayercropscience.com

Garry Gibson
BASF Corporation
1502 53rd Avenue
Vero Beach, FL 32966
Cell: 772 473 1726
Fax: 772 567 2644
w.garry.gibson@basf.com

BLACK SPOT- management recommendations in Brazil

An old report by **Antonio Juliano Ayres**

Citrus Black Spot, caused by the fungus *Guignardia citricarpa* Kiely [*Phyllosticta citricarpa* (McAlp.) van der Aa.], was first detected in Brazil in commercial groves in 1980 in the State of Rio de Janeiro. The disease is also found in the states of Rio Grande do Sul (reported in 1986) and in São Paulo (reported in 1992).

Black Spot attacks leaves, branches and particularly fruits of sweet oranges, lemons, grapefruits, some tangerines and several hybrids. Black Spot causes lesions on the fruit skin, which are not acceptable for consumption in the fresh fruit market. In areas where the incidence of the disease is high, it might cause fruit drop if not appropriately treated.

In areas where citrus is produced for processing, the disease control aims at reducing the source of inoculum, thus eliminating the possibility of premature drop of the fruits. The fruit produced in these areas, even the fruit with symptoms of the disease, are used for processing since this disease does not affect the internal characteristics of the fruit, thus does not affect the quality of the juice.

In these areas, the production cost of a citrus grove is increased by US$100 per hectare due to the need for fungicide spraying to control the Black Spot. This extra cost is the same for industrial processing or for the domestic fresh fruit market.

The European Union is the biggest consumer of Brazil's exports of fresh citrus. Because this disease is non-existent in the member countries of the EU, the batches of exported fruits are selected from disease-free groves.

Once the pathogen is introduced into the grove, its eradication is almost impossible. Thus preventive measures are quite important to ensure that the disease does not spread to new areas. The recommended preventive measures are:

- Planting of young trees without its causal agent;
- Restriction of the access of people as well as that of vehicles, machines and implements to groves;
- Washing and disinfection of vehicles, machines, equipment and material used for harvesting before access to the grove;
- Maintaining the plants in good nutritional and health conditions;
- Inspecting groves frequently;
- Elimination of plants in an advanced state of decline

Chemical control has been the procedure most used after the disease is detected in the field, especially when the production is destined for the fresh fruit market. Sprayings with protective copper compounds or systemic fungicides especially the benzimidazoles are made to protect the newly formed fruits. Other procedures that might help control the disease in contaminated areas include:

- Harvesting the fruit before the usual harvesting time;
- Controlling weeds in the rows with post-emergence herbicides before blooming, to cover the infected fallen leaves with mulch;
- Irrigation of the groves in the dry months to avoid excessive fall of leaves and the predisposition of the plants to be attacked by the fungus;
- Installing windbreaks in the groves to minimize the dissemination of fungus ascospores.

SECC Summer Climate Outlook

El Niño is over in the Pacific Ocean
Pacific Ocean is currently in transition.

After reaching moderate to strong levels in December and January, El Niño has faded over the last two months. El Niño refers to a periodic (every 2-7 years) warming of the tropical Pacific Ocean along the equator from the coast of South America to the central Pacific. This past El Niño can be considered a strong event and was certainly the strongest El Niño since the great one in 1997/1998. Ocean surface temperatures warmed to nearly 2.0 degrees C higher than normal in the El Niño region during the peak of this past event in late December.
Since late December, the El Niño began losing strength, but remained at moderate to strong intensity through the winter and into the month of April. In the last few weeks the decay has occurred more quickly and sea surface temperatures are now very close to normal across the entire region. When sea surface temperatures are close to normal as they are now, the Pacific Ocean is classified as Neutral phase.
One to three months of Neutral conditions is the most likely forecast right now with a wait and see attitude on the possibility of La Niña developing later this summer. We can say that return to El Niño is highly unlikely for the remainder of 2010.
Wet and cold El Niño winter and wet spring set the stage for summer. El Niño is known for bringing frequent storminess and excess rainfall to parts of the Southeast during the winter months and this past year has been no exception. In November through March El Niño typically leads to rainfall 40% to 50% greater than normal over the peninsula of Florida and up to 30% greater than normal over coastal Alabama, South Georgia, and coastal North and South Carolina. The only thing atypical about rainfall patterns this past winter and early spring is that the above normal rainfall extended all the way to northern Alabama and Georgia instead of only affecting the coastal areas. The map below of 180-day rainfall departures from normal for the Southeast U.S. (approximately December through May) shows above normal rainfall that is greatest over the peninsula of Florida, but the pattern extends throughout Florida, Alabama, Georgia, and North Carolina.

El Niño also exerted its influence on temperatures this winter. Winter temperatures averaged 3 to 5 degrees F below normal across the Southeast, resulting in greater chill accumulations than normal years. Parts of the Southeast, especially Florida, also experienced some of the coldest temperatures since 1985. The first half of January featured an extended freezing spell, where Tallahassee recorded a record 14 consecutive days below freezing. The extreme cold temperatures cannot be blamed on El Niño alone, but were also consistent with one phase of another climate pattern known as the North Atlantic Oscillation, which was highly negative during that time.
Although the connection between El Niño and rainfall usually diminishes in April, this past spring saw a continuation of rainy weather well into the Spring. The map below of 30-day rainfall departures from normal shows excesses from 2 inches to 5 inches or more over parts of the Florida Panhandle and southern Georgia. All of this extra winter and spring rainfall has had the beneficial effect of recharging soil moisture, surface water, and groundwater heading into the summer growing season.

El Niño may be over, but effects could linger into summer. The analysis of past El Niño events show that the following late spring/early summer period often turns somewhat drier than normal. The map below shows typical June rainfall patterns following an El Niño in percent of normal. Most of North Caroline, Alabama, and parts of Georgia indicate that a post-El Niño summer can be 5 to 20 percent drier than normal. A word of caution; summer rainfall patterns in the Southeast are still quite unpredictable and the connection to El Niño is nowhere nearly as strong as in the winter months, when such predictions are much more certain.

In North Alabama, North Georgia, and the Carolinas, spring potentially brings the last chance of meaningful recharge for surface and groundwater. Evapotranspiration exceeds normal rainfall during the summer months, so winter and spring recharge received this year is important for water resources. During the summer the Southeast is characterized by hot, humid conditions and convective thundershowers. Coverage and frequency of these afternoon thunderstorms is higher in Florida and extreme South Georgia, but more "hit and miss" in the remainder of Georgia, Alabama, and the Carolinas. Over Florida, the onset of the summer rainy season is usually anywhere from mid-May to early June. The summer rains effectively end the wildfire season in the state, which has been extraordinarily quiet this year due to the abnormal winter and spring rainfall. The wildfire season rarely lasts past mid-June.
For more detailed information on El Niño climate shifts in your particular county, please refer to the Climate Risk Tool at AgClimate

EXTENDED RANGE FORECAST OF ATLANTIC SEASONAL HURRICANE ACTIVITY AND LANDFALL STRIKE PROBABILITY FOR 2010

By
Philip J. Klotzbach1 and William M. Gray

Everyone should realize that it is impossible to precisely predict hurricane activity. We issue these forecasts to satisfy the curiosity of the general public and to bring attention to the hurricane problem.

ATLANTIC BASIN SEASONAL HURRICANE FORECAST FOR 2010 Forecast Parameter and 1950-2000 Climatology (in parentheses)	Issue Date 9 December 2009	Issue Date 7 April 2010
Named Storms (NS) (9.6)	11-16	15
Named Storm Days (NSD) (49.1)	51-75	75
Hurricanes (H) (5.9)	6-8	8
Hurricane Days (HD) (24.5)	24-39	35
Major Hurricanes (MH) (2.3)	3-5	4
Major Hurricane Days (MHD) (5.0)	6-12	10
Accumulated Cyclone Energy (ACE) (96.1)	100-162	150
Net Tropical Cyclone Activity (NTC) (100%)	108-172	160

The 2010 Hurricane Season in the Atlantic Ocean will begin on June 1, 2010, and end on November 30, 2010. Atlantic hurricanes affect the eastern and Gulf coasts of the U.S. and the Caribbean nations. Those with interests in hurricane-prone areas must heed federal and state advice on preparedness, the season in general, and each specific storm in the season.

The experts are predicting a busier-than-usual hurricane season for 2010. These early forecasts, however, will likely be modified depending on the evolving climactic conditions. If the early forecasts prove to be accurate, the 2010 hurricane season will stand in sharp contrast to the relatively mild 2009 season. Special concerns in 2010 are whether a hurricane will hit the already-devastated island of Haiti and how a hurricane in the Gulf of Mexico would affect the giant oil slick created by the explosion on the BP offshore driling platform. Another question is whether a hurricane will come ashore in the Louisiana, Mississippi, and Alabama coastal areas, some of which have not yet recovered from 2005's Hurricane Katrina.

Latest 2010 Hurricane Forecast Predictions

An Above-Average Hurricane Season:

On April 7, 2010, Colorado State University issued its annual report on the year's hurricane forecast. *William Gray* and *Phil Klotzbach* each stated that El Nino conditions will likely dissipate by summer. In addition they believe that the warm tropical Atlantic sea surface temperatures will not drop and will remain at the current temperatures. These temperatures have reportedly been much warmer than usual. Because of this phenomenon, Gray and Klotzbach indicate that the 2010 hurricane season will be above-average. Specifically, they said that the warmer-than-average sea surface temperatures will "[lead] to favorable conditions for hurricanes to develop and intensify.

8 Major Hurricanes Expected
15 Named Storms in Total

Florida produces some of the earliest commercial-best quality peaches in North America. The University of Florida has developed high quality, low chilling, early maturing peach cultivars that can be grown from the panhandle to as far south as Immokalee. Low chilling cultivars can grow and produce fruit under Florida conditions. Furthermore, ripening of these cultivars during April and May ensures an early spring market window for tree-ripe fresh fruit in Florida before production from other southeastern states and California comes to market. Florida peach trees, on average, come into commercial production in 2-3 years and have about a 7- to 10-year life span because diseases and pests eventually weaken trees and decrease fruit production. In addition, newer cultivars with improved qualities are released frequently to replace older cultivars with problems that were not evident when they were first released.

Chilling Requirement

Peaches are temperate-zone plants that require a minimum amount of accumulated cool temperature exposure (below 45°F) to resume normal growth the following spring. This varies by cultivar and is referred to as the cultivar's chilling requirement. Chilling requirement is usually expressed in chill units (cu). Each cultivar has its own characteristic chilling requirement which partially determines its adaptability to a certain region of the state. Florida can be divided into north, north central, and central Florida down to Immokalee and Ft. Pierce, each region having a characteristic range of chilling hours. Peaches of currently available varieties cannot be grown successfully south of Immokalee because of insufficient chilling. Both **chilling requirement** and **chilling hours** are sometimes used interchangeably, but **chilling requirement** refers to the exposure to cool temperatures (between 32° to 55°F) necessary for the resumption of normal spring growth. Chilling usually occurs from November through January in central Florida. The model most used in the SE United States is the total number of hours below 45°F and above 32°F. Temperatures from 40 to 50°F are most effective, with higher or lower temperatures being less effective. When a peach cultivar is grown outside of its recommended area and has insufficient chilling, it may bloom late and not fruit normally. By contrast, if peach cultivars have too low chilling requirement for a given location, they tend to bloom early and can sustain fruit and tree damage during late winter freezes unless overhead irrigation is used to protect flowers and young fruit.

Melting versus Non-Melting Flesh, Clingstone and Freestone Peaches

Peaches can be categorized as having either **melting** or **non-melting flesh**. Non-melting peaches do not bruise as easily as melting flesh peaches during harvest and remain firm after canning. All non-melting types released by the University of Florida are **clingstone**, meaning that the flesh adheres to the pit or stone when fruit is ripe. Melting flesh peaches become soft when canned, have ragged edges when sliced during processing and can be either clingstone or **freestone** (flesh does not adhere to the pit when the fruit is ripe). Many melting flesh peach cultivars have been developed for the fresh market. However, when these melting flesh cultivars are harvested ripe, the fruit bruise easily and have a short shelf life. One solution to this problem is to harvest melting flesh peaches when they were not fully ripe, so that they were firm enough to resist bruising and last longer in grocery stores. However, although peaches become sweeter as they ripen on the tree, they do not become sweeter after they are harvested, especially when they are harvested before they are ripe. Note that most peaches can become softer when you leave them in your fruit bowl because the walls of individual plant cells break down, but the fruit will not become sweeter. Consequently, peach breeders have developed non-melting-flesh peaches for the fresh market so that growers can harvest and ship tree-ripe fruit with firm flesh that resists bruising and has a longer shelf life. Many of the recently released cultivars from the University of Florida peach breeding program have non-melting flesh. All **melting flesh** peaches released from the University of Florida breeding program begin with the prefix Florida. All **non-melting flesh** peaches from the University of Florida share the prefix UF.

Planting Situation

Site selection and cultivar choice rank as the two most important factors in successful peach growing. In selecting a site, avoid low areas characterized by late spring frosts. Even in central and SW Florida, freezes can occur throughout February in cold locations; thus, upland sites with good air drainage are essential for reliable production. Peaches can be grown on a wide variety of soils, provided they are well drained in the upper 4 to 6 feet. Avoid "hardpan" soils unless an excellent system of subsoil drainage tiles is provided. Normal tree spacing is 15 x 20 feet. All common peach cultivars are self-fruitful and should be planted in solid blocks for easier spraying and harvesting. Irrigation is usually needed during the fruit development period to obtain acceptable fruit size and yields. For low-volume irrigation systems, microsprinklers are preferred to drippers. A properly designed overhead sprinkler irrigation system has the advantage of protecting flowers and young fruit from late winter and spring freezes.

Cultural Program

Nematodes are common in Florida soils. Therefore, only nematode resistant rootstocks such as **Flordaguard** should be used in Florida. Peaches are susceptible to a number of pests including diseases and insects. A regular pest control program must be followed to ensure good fruit quality. Although, some diseases and insects can be severe, they can usually be controlled with a proper pest management program. More information is available on peach culture from the Cooperative

Extension Service, the Horticulture Sciences Department at the University of Florida, and the Immokalee IFAS Center.

Labor

Peach production requires high levels of seasonal hand labor. Commercial growers hire labor for pruning, fruit thinning, and harvesting. Family operations often supply their own labor. Timing of labor operations is very critical. A delay of two days in harvesting can possibly result in loss of all profits.

Marketing Situation

The incentives for growing peaches in Florida are: 1) production and marketing of fresh Florida peaches before California, central Georgia or South Carolina; and 2) production of quality fruit when there are almost no other quality fresh fruits of any kind in the markets. Peaches can generally be produced continuously from late April until late May in Florida, depending on weather. Summer rains make disease problems on peaches so great that late maturing cultivars have little or no potential in Florida. It is necessary to harvest each cultivar 3 to 4 times at 2-day intervals in order to obtain fruit that have reached the right stage for marketing. For long distance shipment, fruit must be carefully graded, sized, cooled and packed. This requires a sizeable investment in a packinghouse which is not likely to prove economically feasible with less than 50 acres. However, marketing alternatives for small growers include direct sales to grocery stores or produce markets, and u-pick or roadside stand operations. It is important that several cultivars are grown which ripen in succession. This helps with marketing and efficient use of harvest labor and packing facilities.

Cultivars for SW Florida	Estimated chill units	Bacterial spot resistance	Flower bud set
Flordaglo	150	8	9
Tropicbeauty	150	5	8
UFSun	100	7	10
1 = least desirable, 10 most desirable.			

There are many more Florida peach cultivars, see next page

Cultivar	Fruit Dev. (days)	Size (g)	Taste	Attractiveness
Flordaglo	78	94	8	8
Tropicbeauty	89	100	9	10
UFSun	90	130	10	9
1 = least desirable, 10 most desirable.				

For more information, go to THE UF STONE FRUIT WEBSITE
http://hos.ufl.edu/stonefruit/

Some EDIS publications on peaches

Peach, Plum and Nectarine Production

... **Peach**, Plum and Nectarine Production. Subtopics. **Peach**, Plum, and Nectarine Pest Management; **Peach**, Plum and Nectarine Products and Recipes. Publications. **...**
edis.ifas.ufl.edu/topic_peaches_and_nectarines - 7k

Peach, Plum, and Nectarine Pest Insect Management

... **Peach**, Plum, and Nectarine Pest Insect Management. **...** Green **Peach** Aphid, Myzus persicae
(Sulzer) (Insecta: Hemiptera: Aphididae); Insect Management in Peaches; **...**
edis.ifas.ufl.edu/topic_stone_fruit_pest_insects - 7k

Peach, Plum, and Nectarine Pest Management

... **Peach**, Plum, and Nectarine Pest Management. Subtopics. **Peach**, Plum, and Nectarine
Disease Management; **Peach**, Plum, and Nectarine Pest Insect Management; **...**
edis.ifas.ufl.edu/topic_peach_and_nectarine_ipm - 6k

Peach & Nectarine (HS)

... Advanced Search; **Peach** & Nectarine (HS). Publications. Alternative Opportunities for Small Farms: **Peach** and Nectarine
edis.ifas.ufl.edu/topic_hs_peach-nectarine - 6k

Peach, Plum, and Nectarine Disease Management

... **Peach**, Plum, and Nectarine Disease Management. Subtopics. **...** IFAS Research. Related
edis.ifas.ufl.edu/topic_stone_fruit_diseases - 6k

Peach, Plum, and Nectarine Weed Management

... Advanced Search; **Peach**, Plum, and Nectarine Weed Management.
edis.ifas.ufl.edu/topic_stone_fruit_weeds - 6k

HS1108/HS364: Strategies for Subtropical **Peach** Production in **...**

... Strategies for Subtropical **Peach** Production in Florida
edis.ifas.ufl.edu/hs364 - 19k - 1998-10-30

HS1110/HS366: Rootstocks for Florida **Peaches**, Nectarines, and **...**

... Although a large number of rootstocks are available for stone fruit in other locations and climates, only 'Flordaguard' **peach** rootstock is currently **...**
edis.ifas.ufl.edu/hs366 - 19k - 1998-10-30

HS1125/HS342: Florida Subtropical **Peaches**: General Concepts and **...**

... The University of Florida has developed high quality, low chilling, early maturing **peach** and nectarine cultivars that can be grown from the panhandle to as far **...**
edis.ifas.ufl.edu/hs342 - 50k - 2007-07-01

HS1111/HS365: Training and Pruning Florida **Peaches**, Nectarines **...**

... Fruit from Florida's early maturing **peach**, nectarine Prunus persica (L.) Batsch), and Japanese plum cultivars (Prunus salicina Lindl.) mature in April and May.
edis.ifas.ufl.edu/hs365 - 23k - 1998-10-30

ENY-804/IG075: Insect Management in **Peaches**

... Insect Management in Peaches for Commercial **Peach** Production. **...** **Peach** Tree Borer and Lesser **Peach** Tree Borer **...**
edis.ifas.ufl.edu/ig075 - 31k - 2008-01-17

LEAF AND SOIL SAMPLING AND ANALYSES TO ADJUST FERTILIZER PROGRAMS

Optimum growth and yield of high quality fruit cannot be obtained without adequate nutrition. The most successful fertilizer program should be based on tissue analysis, knowledge of soil nutrient status through soil analysis combined with university recommendations. The deficiency or excess of an element will cause disturbance in plant metabolism and lead to poor performance.

Plant analysis

Used in conjunction with other data and observations, tissue analysis aids in evaluating the nutrient elements of the soil-plant system. It has proven useful in confirming nutritional deficiencies, toxicities or imbalances, identifying "hidden" toxicities and deficiencies where visible symptoms are not manifested, and evaluating the effectiveness of fertilizer programs.

Leaf Sampling

For reliable results and useful interpretation of lab analysis reports, citrus growers, production managers, and consultants must follow the proper procedures for leaf sampling and sample handling because improperly collected leaf samples will provide misleading information about the nutritional status of the trees and the fertilizer programs.

Considerable care is needed in taking samples. Chemical analysis values can only be useful if the samples obtained are representative of the blocks they were taken from. The proper sampling, preparation and handling would affect the reliability of the chemical analysis, data interpretation, nutritional recommendations, and adjustment of fertilizer programs.

Leaf samples must also be taken at the proper time because nutrient levels within leaves are continually changing. However, leaf mineral concentrations of most nutrients are relatively stable within 4 to 6 months after emergence of the spring flush. Therefore, for mature tree blocks, the best time would be in July and August to collect four- to six-month-old spring flush leaves. If taken later in the season, the summer flush would probably be confused with the spring flush.

Each leaf sample should consist of about 100 leaves taken from non-fruiting twigs of 15- 20 uniform trees of the same variety and rootstock, and under the same fertilizer program. Clean brown paper bag should be used. Information sheets from the testing lab should be completed for each sample as this information helps when interpreting the results. The sample bag and the corresponding information sheet should each be carefully labeled with the same identity so that samples and sheets can be matched in the laboratory.

Sampling techniques for leaves

♦ Immature leaves should be avoided because of their rapidly changing composition.

♦ Abnormal-appearing trees, trees at the edge of the block and trees at the end of rows should not be sampled because they may be coated with soil particles and dust or have other problems.

♦ Do not include diseased, insect damaged, or dead leaves in a sample. Use good judgment.

♦ Select only one leaf from a shoot and remove it with its petiole (leaf stem).

Diagnosing growth disorders

♦ Collect samples from both affected trees as well as normal trees.

♦ Trees selected for sampling should be at similar stage of development and age.

♦ Whenever possible, confine the sampling area to trees in close proximity to each other.

Handling of leaf samples

♦ Samples should be collected in clean paper bags and clearly identified.

♦ They should be protected from heat and kept dry and cool (stored in portable ice chests), and placed in a refrigerator for overnight storage if they cannot be washed and oven dried the same day of collection.

♦ For macronutrient analysis, leaves usually do not need to be washed.

♦ Leaves should be dried in a ventilated oven at 60-70^{o}C.

Preparation for analysis

♦ Leaves that have been recently sprayed with micronutrients for fungicidal (Cu) or nutritional (Mn, Zn) purposes should not be analyzed for those micronutrients because it is unlikely to remove all surface contamination from sprayed leaves.

♦ For accurate Fe and B or other micronutrient determination, samples would require hand washing, which is best done when leaves are still in a fresh condition.

Soil analysis

Soil analysis is an important method for gaining basic information regarding the chemical status of the soil. Soil analysis is particularly useful when conducted over several years so that trends can be seen.

Unlike leaf analysis, there are various methods and analytical procedures of soil analysis used by laboratories. In Florida, soil tests for the relatively mobile and readily leached elements such as N and K are of no value. Soil tests are mainly important for pH, P, Mg, Ca, and Cu. For Florida sandy soils, using the Mehlich-1 or double acid (hydrochloric acid + sulfuric acid) extraction procedure adopted by the University of Florida analytical lab, 40-60 lbs/acre (20-30 ppm) of P, 70-120 lbs/acre (35-60 ppm) of Mg, 500-800 lbs/acre (250-400 ppm) of Ca, and 5-10 lbs/acre (2.5-5 ppm) of Cu are considered adequate for citrus. A Ca:Mg ratio of 7:1 seems desirable and ratios of higher than 10 may induce Mg deficiency problems. Copper levels higher than 50 lbs/acre may be toxic to citrus trees if the soil pH is below 6.

Soil sampling

The accuracy of a fertilizer recommendation depends or how well the soil sample on which the recommendation was based represents the area of the grove. In Florida, if soil samples were to be collected once a year, the best time would be at the end of the summer rainy season and prior to fall fertilization, usually during September and October. However, soil sampling may be conducted at the same time as leaf sampling to save time and reduce cost.

Standard procedures for proper sampling, preparation and analysis have to be followed for meaningful interpretations of the test results and accurate recommendations. Each soil sample should consist of 15-20 soil cores taken at the dripline of 15-20 trees within the area wetted by the irrigation system to a depth of 6 inches. The area sampled should be uniform in terms of soil and tree characteristics and correspond to the area from which the leaf sample was taken.

Individual cores should be mixed thoroughly in a plastic bucket to form a composite sample. Subsample of appropriate size should be taken from the composite mixture and put into labeled paper bags supplied by the lab. Soil samples should be air-dried but not oven-dried before shipping to the testing laboratory for analysis.

Conclusion

Tissue and soil analyses are a powerful tool for confirming nutrient deficiencies, toxicities and imbalances, identifying "hidden hunger," evaluating fertilizer programs, studying nutrient interactions. However, if initial plant and soil sampling, handling, and analysis of the sample were faulty, the results would be misleading.

If properly done, tissue and soil analyses can point the way toward more economical and efficient use of fertilizer materials, avoiding excessive or inadequate application rates.

For more details, consult UF-IFAS publication SL 253, "Nutrition of Florida Citrus Trees," at http://edis.ifas.ufl.edu/pdffiles/SS/SS47800.pdf

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Standard Table for Assessing Nutritional Status and Adjusting Fertilizer Programs for Citrus

Leaf analysis standard for assessing current nutrient status of citrus trees based on concentration of mineral elements in 4- to 6-month-old-spring-cycle leaves from non-fruiting terminals.

Element	Deficient less than	Low	Satisfactory	High	Excess more than
Nitrogen (N) (%)	2.2	2.2-2.4	**2.5-2.8**	2.9-3.2	3.3
Phosphorus (P) (%)	0.09	0.09-0.11	**0.12-0.17**	0.18-0.29	0.30
Potassium (K) (%)	0.7	0.7-1.1	**1.2-1.7**	1.8-2.3	2.4
Calcium (Ca) (%)	1.5	1.5-2.9	**3.0-5.0**	5.1-6.9	7.0
Magnesium (Mg) (%)	0.20	0.20-0.29	**0.30-0.50**	0.51-0.70	0.80
Sulfur (S) (%)	0.14	0.14-0.19	**0.20-0.40**	0.41-0.60	0.60
Chlorine (Cl) (%)	------	------	**less than 0.5**	0.5-0.7	0.7
Sodium (Na) (%)	------	------	**less than 0.2**	0.2-0.5	0.5
Iron (Fe) (ppm)	35	35-59	**60-120**	121-200	250
Boron (B) (ppm)	20	20-35	**36-100**	101-200	250
Manganese (Mn) (ppm)	18	18-24	**25-100**	101-300	500
Zinc (Zn) (ppm)	18	18-24	**25-100**	101-300	300
Copper (Cu) (ppm)	4	4-5	**6-16**	17-20	20
Molybdenum (Mo) (ppm)	0.06	0.06-0.09	**0.1-1.0**	2-50	50

APHIS NOTICE

United States Department of Agriculture • Animal and Plant Health Inspection Service • Legislative and Public Affairs
4700 River Road, Riverdale, MD 20737–1232 • Voice (301) 743–7799 • Web: http://www.aphis.usda.gov

USDA Announces Availability of Environmental Assessment for Biological Control Agent for Asian Citrus Psyllid

May 20, 2010

The U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) is advising the public of the availability of an environmental assessment relative to the control of Asian citrus psyllid (*Diaphorina citri Kuwayama*). The environmental assessment considers the effects of, and alternatives to, the release of an insect, *Tamarixia radiata*, into the continental United States for use as a biological control agent to reduce the severity of Asian citrus psyllid infestations. APHIS is making the environmental assessment available to the public for review and comment.

This action is published in today's May 20 *Federal Register*.

Consideration will be given to comments received on or before June 21. You may submit comment by either of the following methods.

- Federal eRulemaking Portal: Go to http://www.regulations.gov/fdmspublic/component/main?main=DocketDetail&d=APHIS-2010-0028 to submit or view comments and to view supporting and related materials available electronically.
- Postal Mail/Commercial Delivery: Please send one copy of your comment to Docket No. APHIS-2010-0028, Regulatory Analysis and Development, PPD, APHIS, Station 3A-03.8, 4700 River Road Unit 118, Riverdale, MD 20737-1238. Please state that your comment refers to Docket No. APHIS-2010-0028.

Comments are posted on the Reglations.gov Web site and may also be reviewed at USDA, Room 1141, South Building, 14th St. and Independence Ave., S.W., Washington, D.C., between 8 a.m. and 4:30 p.m., Monday through Friday, excluding holidays. To facilitate entry into the comment reading room, please call (202) 690-2817.

Note to Reporters: Public notices and other APHIS information are available on the Internet and through Really Simple Syndication (RSS) feeds. Go to the APHIS news release page at www.aphis.usda.gov and click on the "Newsroom" button to view and/or sign up to receive releases via the RSS feed link. For additional information about this topic contact Alyn Kiel at (301) 734-5222 or by e-mail at alyn.g.kiel@aphis.usda.gov.

From The Florida Citrus Pest Management Guide

WEED CONTROL IN CITRUS GROVES

Weeds can reduce the growth, health and survival of young trees, or the time to come into bearing and ultimately fruit production. The more competitive the weeds, the more adversely they alter tree physiology, growth, fruit yield and quality. The attainment of early crop production requires controlling the growth of weeds. Weeds alter economic status by competing with trees, particularly young trees, for water, nutrients and even light in the case of climbing vines, which can easily cover trees if left uncontrolled.

Weeds also have various effects on tree performance including reduced efficacy of low volume irrigation systems, and interception of soil-applied pesticides.

Management Methods

Cultural & mechanical

Cultural methods include off-target irrigation and fertilizer applications. Mechanical methods include cultivation in row middles. However, **constant cultivation results in the destruction of citrus fibrous roots, which normally would grow in the undisturbed portion of the soil.**

Mowing is practiced between the tree rows and away from the trees in combination with herbicide applications in the tree row over the major root zone of trees. It is appropriate where a cover crop is desired in bedded groves to prevent soil erosion. Weeds can also be spread by seed during mowing operations, reinfesting tree rows where herbicides have been applied. **Mowing before seedhead formation is necessary to reduce seed dissemination and reinfestation.**

Chemical mowing

Chemical mowing, utilizing Low Rate Technology (LRT) postemergence herbicide spray applications and wiping in combination with mechanical mowing, is used for the suppression of vegetation in row middles. With the high frequency and cost of mechanical mowing required to maintain vegetation control in row middles, chemical mowing and wiping with low rates of glyphosate has increased. Middles management chemical applications result in the elimination of tall growing species and establishment of more manageable sod type species such as bermuda and bahia grasses.

Chemical

Generally speaking, all weed species listed as susceptible on the herbicide product label will be controlled by that herbicide at the appropriate rate, time of application and stage of growth. Environmental and plant conditions before, during and following the application are also important including moisture in the form of rainfall and/or irrigation.

Poor control can sometimes be expected from postemergence applications to weeds under stress conditions due to poor uptake and translocation of applied herbicides. Assuming that the appropriate herbicide or herbicide mixtures are selected for the weed species present, failures in the program will usually be due to one of the above factors or to the actual application including calibration and/or equipment design and operation.

Herbicides may be classified as foliar or soil-applied. Foliar applied materials may have systemic or contact activity. Soil applied preemergence herbicides are absorbed

through weed root systems, being most effective during germination and early seedling growth stages. Systemic herbicides are those that are absorbed by either roots or above-ground plant parts and are translocated throughout the plant. Contact herbicides act as desiccants, damaging or killing all plant parts actually sprayed with little if any translocation.

For the control of well-established perennial weeds, a postemergence herbicide with systemic metabolic activity should be used with preemergence soil residual products.

Timing and frequency of application are the keys to good vegetation management. **Increased application frequency of lower rates of soil residual herbicides is more effective in young groves where vegetation presence is greater due to more exposure of the grove floor to sunlight and where a greater herbicide safety factor is required**.

Application Technology

Rapid advances in herbicide application technology have resulted in the development of sophisticated equipment. Application equipment is now capable of selective delivery of multiple herbicide products, each directly injected into booms. In a single application, tree rows and row middles may be treated with soil residual and postemergence products with selectivity for tree age, soil type and vegetation species.

Well-maintained, accurately calibrated equipment with good filtration and agitation systems capable of uniform distribution of prescribed spray volumes and droplet size is essential for efficiency, cost-effective vegetation management. Worn nozzle tips result in increased spray delivery rates and distortion of distribution patterns and should be checked regularly. Improved herbicide boom design to reduce tree skirt contact, spray drift and interference of heavy weed cover with nozzle output will reduce tree damage and fruit drop while improving control of target vegetation. Tree skirt pruning and timing of postemergence applications will also reduce boom and spray contact with low hanging limbs and fruit.

Environmental Considerations

In determining management options, herbicide selection should be based not only on species and stage of vegetation development, but product solubility and leaching potential, and soil type. Objectives are to reduce weed competition and interference through measured vegetation control/suppression with inputs having reduced potential for leaching through over-irrigation, runoff and erosion, chemical drift, or other off-target impacts.

CAUTION: Herbicides may move through the soil to groundwater. Several factors influence the rate of this movement. Lower rates applied more frequently combined with sound irrigation management practices will reduce herbicide movement.

The use of bromacil-containing herbicides is prohibited on deep, sandy Ridge-type soils.

For more details, go to:
2010 Florida Citrus Pest Management Guide: Weeds
http://edis.ifas.ufl.edu/CG013

Flatwoods Citrus

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__Asian American
__Hispanic
__White, non-Hispanic
__Black, non-Hispanic

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__Female __Male