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Flatwoods Citrus



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Previous issues of the Flatwoods Citrus newsletter can be found at:
<http://citrusagents.ifas.ufl.edu/agents/zekri/index.htm>
<http://irrec.ifas.ufl.edu/flcitrus/>

Please take a moment to rate the quality and usefulness of the information presented in the Flatwoods Citrus newsletter this year. Go to Page 23.

IMPORTANT EVENTS

Citrus Research Field Day

November 15, 2011

Pre-registration required

See enclosed brochure (on page 24) for more details and registration

International Symposium on Mechanical Harvesting & Handling Systems of Fruits & Nuts

April, 2-4, 2012, Lake Alfred CREC

IMPORTANT WEBSITES

Citrus Extension: <http://www.crec.ifas.ufl.edu/extension/>

Citrus Health Management Areas (CHMAs):

http://www.crec.ifas.ufl.edu/extension/chmas/chma_overview.shtml

Florida Citrus Extension Agents:

http://citrusagents.ifas.ufl.edu/Citrus_Agents_Home_Page/Citrus_Agents_Home.html

Citrus Research & Education Center:

<http://www.crec.ifas.ufl.edu/>

Florida Citrus Resources: <http://irrec.ifas.ufl.edu/flcitrus/>

Florida Citrus Pest Management Guide:

http://edis.ifas.ufl.edu/topic_book_florida_citrus_pest_management_guide

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HOW TO REDUCE DRIFT?



- Avoid high spray pressure, which create finer droplets. Use as coarse a spray as possible and still obtain good coverage and control.
- Don't apply pesticides under windy or gusty conditions; don't apply at wind speeds over 10 mph. Read the label for specific instructions.
- Maintain adequate buffer zones to insure that drift does not occur off the target area.
- Be careful with all pesticides. Insecticides and fungicides usually require smaller droplet sizes for good coverage and control than herbicides; however, herbicides have a greater potential for nontarget crop damage.
- Choose an application method and a formulation that is less likely to cause drift.
- Use drift reduction nozzles.
- Use wide-angle nozzles, lower spray boom heights, and keep spray boom stable.
- Use drift control/drift reduction agents. These materials are

designed to minimize the formation of droplets smaller than 150 microns. They help produce a more consistent spray pattern and aid in deposition. Drift control additives do not eliminate drift. Therefore, common sense is still required.

- Apply pesticides early in the morning or late in the evening; the air is often more still than during the rest of the day.
- Don't spray during thermal inversions, when air closest to the ground is warmer than the air above it. When possible, avoid spraying at temperatures above 90°-95° F.
- Know your surroundings! You must determine the location of sensitive areas near the application site. Some crops are particularly sensitive to herbicides, which move off-site.
- Be sure you are getting the spray deposition pattern you think you are; service and calibrate your equipment regularly.
- Whenever possible, cut off the spray for missing trees in the row. Spray that does not enter the tree canopy is wasted and contributes significantly to drift problems.
- Keep good records and evaluate pesticide spray results.

**Remember,
ALWAYS read and follow
label directions.**

Early reports indicate citrus health management areas are working

Scott Emerson

Sep. 6, 2011

Citrus Health Management Areas (CHMAs), an initiative led by the University of Florida Institute of Food and Agricultural Sciences (UF/IFAS) in partnership with the citrus industry, the Florida Department of Agriculture and Consumer Services Division of Plant Industry (FDACS/DPI) and the United States Department of Agriculture (USDA), are designated geographic areas carved out of Florida's 555,000 acres of citrus, where growers organize and synchronize timing of control sprays and its mode of action to reduce populations of Asian citrus psyllid (ACP), combat the spread of greening disease and reduce psyllid resistance to control compounds.

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Michael Rogers, UF/IFAS entomologist and architect of Florida's CHMAs said he is encouraged by grower participation and reports of reduced psyllid populations.

"Since the formal CHMA program was initiated in late 2010, grower participation in coordinated psyllid spray programs has increased dramatically," Rogers said. "To date, there are 34 CHMAs functioning throughout the state encompassing more than 426,000 acres of citrus."

Rogers added that the goal of these coordinated spray programs is to provide more effective

reduction in psyllid populations beyond what a single grower can do alone.

"Cooperative efforts that are effective in lowering psyllid populations may also lead to a reduction in the number of pesticide applications applied each year, thus reducing costs," Rogers said. "There have already been cases this season where CHMAs were able to delay their next planned psyllid spray by three to four weeks because the control obtained by the previous coordinated spray was very effective."

This voluntary program is driven by growers who enroll their groves with county Extension agents assigned to an area. These agents recruit one or two growers in each area to serve as a "captain." Area captains and Extension agents collaborate to organize meetings to encourage participation in CHMAs, collect grower contact information, coordinate with area growers regarding timing and treatment of groves, and maintain the flow of communication. Area captains also serve as a point of contact with UF/IFAS, FDACS and USDA.

John Gose, a production manager for Lykes Brothers in central Highlands County, serves as area captain for groves along State Roads 17/27 where approximately 52 square miles or 7,835 acres have been enrolled in CHMAs, including 1,600 acres of groves owned by Lykes Brothers. Gose said that constant contact between growers and the scientific community, along with vigilant scouting and field surveys, has been a key to the success of CHMAs.

"As CHMA captain, I send out notices through the Highlands County Citrus Growers Association as to when sprays are planned and the suggested mode of action," Gose said. "In our first year, psyllid populations in our groves are not spiking as they have in the past. I've heard the same from other growers in our CHMA, as well as other CHMA's in the state. This is very evident with the inspection results from IFAS, the Division of Plant Industry and USDA."

Greg Carlton, bureau chief, FDACS/DPI Bureau of Pest Eradication and Control in Winter Haven, said his agency and USDA are supporting the CHMA

initiative by training and providing personnel to inspect 6,000 blocks of citrus statewide on a three-week cycle.

"The information collected by inspectors is loaded into USDA's national database where FDACS/DPI format the data to create graphs and maps showing psyllid populations for publication on the IFAS Web site," Carlton said. "This information is then used by scientists, Extension, area captains and growers to set thresholds and make application decisions. So far, the program is progressing well."

Tim Hurner, multi-county Extension citrus agent in Highlands County agrees. "The reduction in Asian citrus psyllid populations is a direct result of CHMAs," Hurner said. "Before these coordinated efforts, growers were working individually, so if one grower sprayed his grove and his neighbor didn't, the psyllids would simply pick up and move to the untreated grove. Now, with growers synchronizing sprays and modes of action, psyllids have nowhere to hide."

For information regarding CHMAs in your area, visit http://www.crec.ifas.ufl.edu/extension/chmas/chma_websites.shtml

The following is a list of UF/IFAS scientists and multi-county Extension agents who can answer questions and provide information regarding HLB, Asian citrus psyllid and CHMAs.

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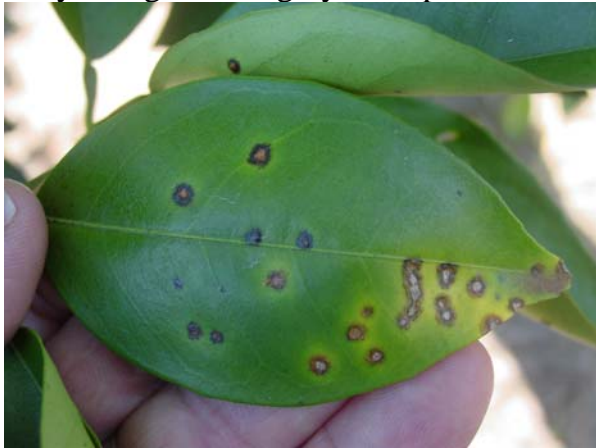


http://www.crec.ifas.ufl.edu/extension/chmas/chma_overview.shtml

Citrus Canker has been a devastating problem



Citrus canker is a serious bacterial disease that affects citrus. Grapefruit and some early oranges are highly susceptible.



Major outbreaks of citrus canker occur when new shoots are emerging or when fruit are in the early stages of development. Frequent rainfall in warm weather, especially during storms, contributes to disease development. Citrus canker is mostly a leaf-spotting and fruit rind-blemishing disease, but when conditions are highly favorable for infection, it causes defoliation, shoot die-back, and fruit drop. When feeding galleries of Asian leafminer on leaves, stems, and fruit become contaminated with the bacterium, the number and size of individual lesions greatly increases and results in tremendous inoculum production.

Canker is more severe on the side of the tree exposed to wind-driven rain. Spread over longer distances can occur during severe tropical storms, hurricanes, and tornadoes. Workers can carry bacteria from one location to another on hands, clothes, and equipment. Grove equipment spreads the bacteria in blocks within groves, especially when trees are wet. The entire state of Florida has been under quarantine, and fruit movement is subject to specific regulations based on market destination.



Rules for decontamination are still in place and should be followed. In moving equipment and personnel from grove to grove, all equipment has to be free of plant material and thoroughly decontaminated. Decontamination is especially important in harvesting operations, hedging and topping, and in any other practices involving extensive contact with foliage.

Tree removal. If canker is detected in areas previously free of the disease, removal and burning of trees on site can slow the establishment of the disease. For tree removal to be effective, canker has to be localized and limited to a small number of trees. Tree removal is not likely to be effective if canker is widely spread. Before tree removal is attempted as a

control measure, blocks should be thoroughly inspected to be sure that canker is not more widespread than initially thought. At some point, tree removal will no longer be economically sustainable and should be discontinued. **Buckhorning or pruning** of canker-infected trees can alleviate the problem, but is not likely to eliminate the disease. Following pruning or buckhorning, the new growth flush should be treated with copper products once the growth is half expanded to protect it from new infections.



Windbreaks. Windbreaks are highly effective in reducing the spread of canker, but more importantly, they reduce the severity of the infection in endemic situations. The vast majority of the infection occurs by wind-blown rains. Winds of 18 to 20 mph are needed to actually force bacteria into the stomates on leaves and fruit. Windbreaks are the single most effective means of dealing with canker. To be effective for canker control, windbreaks need not be dense. All that is required is to reduce wind speed to less than 20 mph. The need for and the distance required between windbreak rows will depend on the destination of the fruit, fresh or processed, and the susceptibility of the variety. With grapefruit for the fresh market in Florida, it is likely that each 5- to 10-acre block will need to be surrounded by a windbreak. In many groves of less susceptible varieties, a

windbreak down the row about every 300 ft may be sufficient. In some situations where some protection exists and tolerant varieties are grown for processing, additional windbreaks may be unnecessary. Additionally, not topping outside rows of citrus will also serve as a viable, harvestable windbreak. Currently, it is recommended that growers plant windbreaks along fence lines, ditches, around wetlands, or wherever they can plant without removing citrus trees. If it becomes obvious that more windbreak protection is needed, rows of citrus or end trees can be removed to accommodate windbreaks.

Copper sprays. Over the last 3 decades, IFAS has evaluated dozens of products for canker control. Products such as antibiotics, compounds that induce resistance in plants, and disinfectants often provide limited canker control, but no material has proven more effective than copper products.

Copper products are quite effective in preventing infection of fruit, less effective for reducing leaf infection, and have limited value in reducing spread of the disease. Application of copper to young leaves protects against infection, but protection is soon lost due to rapid expansion of the surface area. Fruit grows more slowly and is easier to protect. Fruit is susceptible to infection after the stomates open when the fruit is about 1/2- to 1-inch in diameter until they develop resistance in mid to late July. Infection through wounds can occur at any stage. It is believed that most of the infection will occur during June and July. With endemic canker, we suggest that three copper sprays be used for early oranges grown for processing, one in mid-May, a second in mid-June, and a third in mid-July. If canker continues to be very severe, another application of copper in August

may be justified. Two applications should be sufficient for Valencias, in early June and early July.

Programs for fresh fruit are more complex, but many copper sprays are already used on these varieties. For fresh market grapefruit, a low rate of copper should be added to the spray of spring flush for scab. Subsequently, the copper spray program used for melanose control should also control canker, but additional applications may be needed in late June and July. Copper may need to be added to applications of fungicides or petroleum oil.

Most tangerines are fairly tolerant to canker. Programs used for control of *Alternaria* should also protect against canker, but copper will have to be used in each spray. Navel oranges are highly susceptible to canker and will probably need to be sprayed every 3 weeks from late April through July. Fallglo is more tolerant and probably three sprays in May, June, and July should suffice.

The rates needed depend on the length of protection expected and the weather. As little as 0.5 to 1.0 lb of metallic copper will protect spring flush growth or fruit during the dry spring season. However, in the rainy season, 2 lb of metallic copper will be required to protect fruit for 3 to 4 weeks.

Copper usage should be minimized since this metal accumulates in soil and may cause phytotoxicity and creates environmental concerns.

Leafminer control. The citrus leafminer does not spread canker, but extensive infestation by leafminer greatly increases canker inoculum levels making the disease difficult to control. Leafminers are not usually a problem on the spring flush and no control is needed at that time. Leafminer control on the first summer flush can reduce disease pressure

considerably. If properly timed, applications of petroleum oil, Agri-mek, Micromite, Spintor, or Assail will reduce damage by leafminer. Late summer flushes tend to be erratic and effective control at that time will probably be difficult.



The Citrus Leafminer



Leafminer populations decline to their lowest levels during the winter, due to cool temperature and the lack of flush for larval development. Populations of leafminer build rapidly on the spring flush, although their presence is not apparent until late spring as populations increase while the amount of new foliage decreases. The summer period of high leafminer damage coincides with the rainy season when canker spread is most likely.

Citrus leafminer greatly exacerbates the severity of citrus canker caused by *Xanthomonas axonopodis* pv. *citri*. This insect is not a vector of the disease. Nevertheless, leafminer tunnels are susceptible to infection much longer than mechanical wounds. Tunnels infected by canker produce many times the amount of inoculum than in the absence of leafminer. Control of leafminer should be optimized in areas where infection by canker is high. Natural enemies already present in Florida have responded to leafminer infestations, causing in excess of 50% mortality of larvae and pupae in some areas. The introduced parasitoid *Ageniaspis citricola* has established throughout most of Florida, with rates of apparent parasitism reaching 90% or more. However, these high rates of parasitism are not seen until late in the year.

Leafminer Management

Nonbearing Trees

On young trees, use of the soil-applied systemic insecticide imidacloprid is the most effective means of preventing mining damage on the new flush and has little direct effect on natural enemies. Soil drenches directly to the base of the tree with imidacloprid have been shown to provide at least 8 weeks control of leafminer.

Soil applications of imidacloprid should be made about 2 weeks prior to leaf expansion to allow time for the pesticide to move from the roots to the canopy. Avoid applications 24 hours prior to significant rainfall events which will result in movement of the product out of the root zone before it can be taken up by the plant. Because of limits on the amount of imidacloprid that may be applied on a per acre basis each season, only one application in the spring and possibly one

in the fall are recommended. When the residual effects of the spring application have worn off, typically during the mid-summer rainy season, foliar sprays can be used on small trees to reduce leafminer damage.

Bearing Trees

If canker is present in a grove (or in a nearby grove), healthy trees with leafminer damaged leaves are more likely to become sites for new canker infection. The only products currently available for leafminer control on large trees are foliar insecticide sprays. Soil applications of imidacloprid are not effective for leafminer control on large trees due to use rate restrictions that limit the usefulness of the product on trees greater than 6-8 feet in height. It should also be noted that aldicarb (Temik[®]), which has been demonstrated to suppress psyllid populations on large trees, does not provide control of leafminers. While there are a number of products that are effective for controlling leafminer, achieving control of leafminer using foliar sprays on large trees is difficult due to the unsynchronized flush typically encountered during the summer period when leafminer populations are at their highest levels.

Since leafminers affect only developing leaves, coverage of peripheral leaves in the canopy should be adequate to exert suppression when applying foliar pesticides.

**For more information, go to
The Florida Citrus Pest
Management Guide**

http://edis.ifas.ufl.edu/TOPIC_BOOK_Florida_Citrus_Pest_Management_Guide

SECC Summer/Fall Climate Outlook

http://agroclimate.org/forecast/s/current_climate_outlook.php

August, 17th 2011

La Niña watch issued for the upcoming fall/winter. After enduring the winter and spring dominated by the influence of a strong La Niña, the summer season saw a return to near-normal sea surface temperatures in the tropical Pacific (Neutral Phase). La Niña refers to the periodic appearance of colder than normal ocean waters along the equator in the eastern and central Pacific Ocean, in many ways the opposite of El Niño. Even though ocean surface temperatures returned to near normal, the atmosphere continued to show signs of La Niña's influence in strong easterly low-level winds, lack of cloudiness or rain in the central Pacific, and negative SOI. In addition, La Niña's are often multi-year events, especially when the first year is a strong episode. For this reason we have been warning about the possibility of a return to La Niña this fall and winter. Now, several coupled ocean-atmospheric models, including NOAA's CFS, are now indicating changes in the system and are predicting the return of La Niña. Based on the historical tendency for strong episodes to last more than one year and now the agreement of some dynamic models, we are predicting a greater than 50% chance of La Niña redeveloping this fall and winter.

La Niña is known to bring drier than normal weather and climate patterns to Florida and coastal areas of the Southeast and also Texas and the desert Southwest. Last year's strong event was the primary trigger for the unprecedented drought in Texas and New Mexico and very dry conditions here in the Southeast. A second year of La Niña could hard-hit areas.

Recent conditions – La Niña holds on longer than normal. Typically, La Niña brings warmer than normal temperatures to the entire Southeast and drier than normal rainfall patterns to Florida, southern Alabama and Georgia, and coast Carolina's during the colder months, basically October through March or April. Rainfall over the area generally followed this pattern as expected,

but temperatures in December and early January were among the coldest on record and certainly unexpected during a strong La Niña. The cold temperatures were the result of a month-long stretch of strongly negative phase of the North Atlantic Oscillation (NOA), a pattern of surface pressure over the Northern Atlantic Ocean that is known to impact winter temperatures and snowfall in Europe and the eastern United States. After the NOA returned to normal, the usual La Niña temperature patterns prevailed the remainder of the winter and spring.

The normal cycle of a La Niña event is to weaken in the spring and it usually loses its strong connection to our weather and climate patterns by mid-April and May. This year, however, the warmer and drier conditions persisted through May and into most of June. The result was that the three-month period from April-June was the driest on record for the Florida Panhandle and southwest Georgia. Extremely hot temperatures accompanied the dry weather, as June ranked among the warmest on record for Florida, Georgia, and Alabama. July and August saw a return to more seasonal temperatures and regular rainfall that has eased drought concerns.

Fall Outlook – Warmer and drier conditions are likely to set in as drought worsens. Typically, La Niña leads to fall, winter, and spring seasons that are warmer and drier than normal. This trend usually begins in mid-September over the entire Southeast, then intensifies and sets in most strongly over Florida and the coastal areas of the Gulf of Mexico and Atlantic Ocean in the heart of the winter.

Typical October rainfall (percent change) and temperature (degrees F) departures from normal during La Niña.

With most of the Southeast now in various phases of drought, the situation is likely to worsen during the fall. Mid-September through October is the driest season of the year for much of the Southeast, and can be very dry without the influence of tropical events like hurricanes, tropical storms, and depressions. With evapotranspiration rates still high with warmer temperatures, expect surface water and soil moisture levels to continue

their decline in areas that miss the impact of a tropical system.

Hurricane Season Outlook. The year-to-year variability in tropical activity in the Atlantic is partially controlled by the El Niño-Southern Oscillation. La Niña (colder than normal water in the eastern tropical Pacific) increases the formation of tropical storms and hurricanes, and a recent study co-authored by Dr. James O'Brien shows that this increase is manifested by more hurricane landfalls along the East Coast of the U.S. (Georgia to Maine). Neutral conditions and La Niña both coincide with an increased risk of landfalls along Florida and the Gulf Coast.

Looking further ahead – La Niña brings greatly increased chance of warm and dry winter to the Southeast. If La Niña conditions develop in the next one to three months, it usually brings warmer weather to the entire region, with temperatures generally averaging 2 to 4 degrees F higher than normal from November through March. The strongly negative North Atlantic Oscillation (NAO) that brought frigid temperatures to the Southeast the past two winters is not likely to return so strongly and the last two years have been extraordinary occurrences.

La Niña also brings drier weather to much of the three states. During the winter season, the dry pattern actually pushes southward and intensifies over the peninsula of Florida and the immediate coasts of Alabama, Georgia, and the Carolinas, where average La Niña rainfall is 30% to 60% less than normal. Inland North Carolina, Central Alabama, central Georgia, and northern Georgia usually see near normal rainfall during a typical La Niña, but the strongest events (like the current La Niña) push the dryness further north and inland. A strong La Niña will increase the likelihood that drought could develop in critical watersheds like those that feed Lake Lanier in northern Georgia.

Typical January rainfall (percent change) and temperature (degrees F) departures from normal during La Niña.

The reason for the rainfall patterns seen in January can be attributed to the predominant jet stream configuration that sets up during a La Niña winter. While the position of the jet stream will fluctuate with the passing of individual low pressure

systems, fronts, and air masses, the preferred or average setup of the jet stream is that of high pressure or "ridging" over the Pacific near the U.S. west coast and low pressure or "troughing" over the mid-section of the country. This configuration tends to steer winter storms up the Mississippi Valley and Midwest. Unfortunately, this storm track often leaves the Southeast dry and the cold fronts with a little less punch.

For more detailed information on La Niña climate shifts in your particular county, please refer to the Climate Risk Tool at AgroClimate:

[Climate Risk Tool](#)

So what are the implications for the Southeast?

The warmer temperatures will impact winter crops and fruit production, resulting in less chill accumulation over the course of the winter season.

Warmer temperatures will also mean greater evaporation rates. Due to the jet stream configuration described above, severe or damaging freezes are less likely during La Niña than in neutral years. We understand that many crops are at risk from an early season freeze due to delayed planting from the drought. However, the risk of early or late season freezes does not seem to be affected by the Pacific Ocean.

The shift towards drier than normal conditions becomes much more pronounced in Florida and coastal Georgia, Alabama, and the Carolinas as fall progresses into winter, resulting in much higher confidence in a forecast of dry conditions in these areas. Keep in mind that winter rainfall is vital to the recharge of surface and groundwater in Georgia, Alabama, and the Carolinas. While the worsening of drought may slow during the winter months when water demand is much lower, it may intensify quickly come spring. Summer evapotranspiration rates are greater than even normal rainfall, so heading into the spring with deficits already accumulating from winter is a sure recipe for rapid drought intensification. In Florida where drought concerns are lower right now with recent rainfall, there is a strong possibility for drought to reintensify this winter and spring. Wildfires will also be a concern, where studies show that La Niña normally leads to an active wildfire season in Florida and South Georgia. For more information on how La Niña and the developing drought will affect crops this fall and winter.

TALLAHASSEE, Fla. -- September 2, 2011 La Nina Watch Means More Dry Weather for Southeastern US

Reporter: David F. Zierden

The Southeast Climate Consortium and the National Oceanic and Atmospheric Association (NOAA) have issued a La Nina watch, meaning it is more likely that La Nina will redevelop in the Pacific Ocean in the next one to three months.

La Nina refers to a state of the tropical Pacific Ocean in which surface temperatures along the equator from South America to the central Pacific turn colder than normal. La Nina can be thought of as the opposite of El Nino, in which the same area of the Pacific is much warmer than normal.

Florida State University is a member of the Southeast Climate Consortium, a partnership of eight universities in Florida and the Southeast aimed at bringing seasonal climate prediction to better use in the management of agriculture and natural resources in the southeastern United States. FSU also is a partner in the Florida Climate Institute with the University of Florida.

La Nina typically brings fall and winter weather patterns to parts of the Southeast that are warmer and drier than normal. Historically, the peninsula of Florida averages rainfall 40% to 60% below normal in the months of November through March during La Nina events. Temperatures over the entire area average 3 to 4 degrees warmer than normal. The onset of warm and dry conditions normally begins in September, and the pattern intensifies as the season progresses.

Last year, the Pacific Ocean slipped into one of the strongest La Ninas on record and was a key trigger for the development of drought in Florida and the Southeast as well as unprecedented drought in Texas and Oklahoma, said David Zierden, the state climatologist of Florida and an associate in research at FSU's Center for Ocean-Atmospheric Prediction Studies.

Historically, there is a tendency for strong La Nina events to last for two or more years. More recently, ocean temperatures along with wind and cloudiness patterns over the Pacific are indicating that the redevelopment of the cold water is likely after a summer of neutral conditions.

Crops in parts of the Southeast were already suffering from extremely dry and hot conditions earlier this summer. The three-month period of April through June was the driest on record since 1895 for the western Florida Panhandle and southern Georgia, while June ranked as one of the warmest on record. Southern Alabama, southern Georgia, and the western Florida Panhandle are designated as experiencing moderate to severe drought, according to the U.S. Drought Monitor.

The expected dry pattern could prolong or even worsen the widespread drought affecting the region. Potential deficits in rainfall during the winter in these areas can be critical, as winter is the primary recharge season for surface and groundwater.

Farther south, the water level in Lake Okeechobee is still well below normal and has little chance to recover during what is left of the summer rainy season. According to Geoff Shaughnessy, meteorologist with the South Florida Water Management District: There is only about a 10% chance of the lake recovering this season, and that would only be in the event of one or more tropical systems.

The impact of La Nina is already being seen in the Atlantic hurricane season. The state of the Pacific Ocean is a primary factor in seasonal hurricane forecasts from the National Oceanic and Atmospheric Administration, Colorado State University and FSU. The La Nina phase has been shown to lead to more active hurricane seasons. La Nina tends to favor hurricane paths that curve northward and threaten the East Coast of the United States.

La Nina also brings the potential for a very active wildfire season to the state of Florida. Acreage burned is often more than double the average in La Nina years, as was seen in the active seasons of 1998 and 2001.

Warmer temperatures may slow the necessary chill accumulation in flowering fruits such as blueberries, peaches and strawberries but may enhance development of other crops. The forecasted warm and dry conditions are unfavorable for the production of winter forage for cattle when irrigation is not available. While mild freezes can be expected every year in North and Central Florida, La Nina reduces the risk of severe freezes in the citrus and vegetable belts.



District-Wide Conditions for September 6, 2011

The South Florida Water Management District (SFWMD) is issuing the following briefing:

Despite recent rainfall, some surface water and groundwater levels have been slow to recover from a dry period that lasted from October until June. Lake Okeechobee remains significantly below its historical average. South Florida's transition into the dry season begins next month, and meteorologists are forecasting rainfall levels to be below average.

The District is storing as much water as possible during this wet season. However, not all rainfall can be retained due to limited storage options and the need for immediate flood protection. Unless there is significant tropical rainfall in the coming weeks to boost water levels in Lake Okeechobee and other key areas, the region is expected to remain in a water shortage through the spring.

Lake Okeechobee Levels

Today	10.77 feet
Historical Average for Today	14.33 feet
This Date One Year Ago	14.06 feet
One Week Ago	10.65 feet
Deficit Below Water Shortage Line	1.71 feet

Water Levels in Key Locations (as of September 6, 2011)

LOCATION	WATER LEVEL	HISTORICAL AVERAGE FOR TODAY	THIS DATE LAST YEAR
Lake Istokpoga	38.60 feet	38.69 feet	38.65 feet
WCA-1	15.71 feet	16.22 feet	16.71 feet
WCA-2	13.36 feet	13.12 feet	12.79 feet
WCA-3	9.78 feet	10.32 feet	10.36 feet
Lake Kissimmee	51.35 feet	50.85 feet	50.73 feet
For a map of wet season rainfall totals since June 1 in all District basins, click here .			

Water Shortage Orders and Conservation Measures

- [Modified Phase II restrictions](#), effective March 26, limit landscape irrigation to two days per week throughout the District.
- [Modified Phase III restrictions](#), effective June 10, limit landscape irrigation to one day per week in the City of West Palm Beach's utility service area, including the City of West Palm Beach and the towns of South Palm Beach and Palm Beach.
- On June 13, the West Palm Beach City Commission implemented additional emergency restrictions for its utility service area. The resolution can be viewed [here](#).
- Landscape irrigation using reclaimed water is not restricted under the orders. Additional watering is permitted for new plantings.
- Irrigation times vary by area:
 - For Broward, Glades, Hendry, Martin, Miami-Dade, Monroe, Okeechobee and St. Lucie counties. Also for portions of Osceola County within the SFWMD boundaries, the Town of Windermere in Orange County, cities within Lee County except Cape Coral and Palm Beach County except areas served by the West Palm Beach utility – [Just the Facts](#)
 - Charlotte, Highlands and Polk counties – [Just the Facts](#)
 - The City of Cape Coral – [Just the Facts](#)
 - Collier County – [Just the Facts](#)
 - Unincorporated areas of Lee County – [Just the Facts](#)

Water Shortage Order – Lake Okeechobee Service Area (LOSA)

- [Modified Phase III restrictions](#), effective May 19, require a 45-percent reduction in surface water withdrawals for all agricultural, nursery and diversion and impoundment users within LOSA, which includes portions of Okeechobee, Glades, Hendry, Lee, Martin, Palm Beach and St. Lucie counties and the Everglades Agricultural Area.

Information about water shortage orders and warnings, current weather and water conditions and water-saving tips can be found at www.sfwmd.gov/waterwatch.

**Water shortage questions from the public can be directed to:
(800) 662-8876 or (561) 682-6470**

Media inquiries can be directed to:

Randy Smith

South Florida Water Management District

Office: (561) 682-2800 or Cellular: (561) 389-3386

FIRE ANTS

Imported fire ants are reddish brown to black and are 1/8 to 1/4 inch long. These ants are aggressive and notorious for their painful, burning sting that results in a pustule and intense itching, which may persist for a week. Some people have allergic reactions to fire ant stings that range from rashes and swelling to paralysis or even death. In addition to stinging humans, imported fire ants can sting pets, livestock, and wildlife. Crop losses are also reported due to fire ants feeding on plants and even citrus trees. Fire ants may damage young citrus by building nests at the trunk bases. The ants feed on the bark and cambium to obtain sap, often girdling and killing young citrus trees. Fire ants also chew off new growth at the tips of branches and feed on flowers and developing fruit. In groves infested with ants, harvesting crews may not be willing to work and may request a higher fee to do their job. The ants are also known to cause extensive damage to irrigation lines and plug emitters. They aggregate near electrical fields where they can cause short circuits or interfere with switches and equipment such as water pumps, computers and air conditioners.

BIOLOGY

Red imported fire ants live in colonies that contain cream-colored to white immature ants, called brood. The brood is comprised of the eggs, larvae, and pupae. Also within the colonies are adult ants of different types. They include winged males and winged females, workers, and one or more queens. While thousands of winged males and females can be produced per year in large colonies, they do not sting. Newly-mated queens can fly as far as 12 miles from the nest (or even farther in the wind), but most land within a mile. New colonies do not make conspicuous mounds for several months. Once a colony is established, a single queen can lay over 2,000 eggs per day. Depending on temperature, it can take

20 to 45 days for an egg to develop into an adult worker. Workers can live as long as 9 months at 75°F, but life spans usually are between 1 and 6 months under warmer outdoor conditions. Queens live an average of 6 to 7 years.

Fire ants are omnivorous feeders. Workers will forage for food more than 100 feet from the nest. They can forage during both the day and the night, generally when air temperatures are between 70° and 90°F. When a large food source is found, fire ants recruit other workers to help take the food back to the colony. Liquids are ingested at the food source, and stored within the ants until they are regurgitated to other ants within the colony. Liquids from solid foods are extracted at the source, or are carried back as solid particles. Large solids may be cut into smaller pieces so they can be carried back to the colony. There are two types of fire ant colonies: single-queen, and multiple-queen colonies. A colony may contain as many as 100,000 to 500,000 workers.

CONTROL STRATEGIES AND TECHNIQUES

Numerous methods have been developed to control fire ants. Unfortunately, there are no control methods that will permanently eliminate fire ants. Four strategies are currently being used to control fire ants: broadcast bait applications, individual mound treatments, a combination of broadcast baiting and individual mound treatments, and barrier/spot treatments.

1. Broadcast Bait Applications

This strategy attempts to reduce fire ant populations by applying insecticides incorporated into an attractant or bait. The ants carry the bait to the colony. The slow action of the toxicant allows the ants to feed it to other members of the colony before they die. When the toxicant is fed to the queen(s), she either dies or no longer produces new workers and the colony will eventually collapse.

● **Keep baits dry.** Wet baits are not attractive to fire ants. Apply baits when the grass and ground are dry, and rain is not expected, preferably for the next 24 hours.

● **Apply baits when fire ants are actively foraging.** During hot, summer weather, apply baits in the late afternoon or evening because fire ants will forage at night under these conditions.

● **Follow the directions on the label.** It is against the law to apply baits in areas not listed on the label.

2. Individual Mound Treatments

This strategy attempts to eliminate colonies of fire ants by treating mounds individually. Individual mound treatments are time consuming and labor intensive. However, colonies treated individually may be eliminated faster than colonies treated with broadcast bait applications.

Baits

Bait products used for broadcast bait applications can be applied to individual mounds. Sprinkle the recommended amount of bait around the base of the mound up to three feet away. In addition, follow the Guidelines for Effective Bait Applications given previously. As with broadcast bait applications, the use of baits for individual mound treatments may take one to several weeks to eliminate colonies.

Wellmark



EXTINGUISH Professional Fire Ant Bait **Extinguish** PLUS

Jack Kilgore

M: 239-707-7677
Nextel: 158*17*24422
g8trmanjek@comcast.net



Dusts

Dusts are dry powder insecticidal products. The dusts stick to the bodies of ants as they walk through treated soil. Ants that contact the dust will eventually die. Dusts are applied by evenly sprinkling a measured amount of dust over the mound. Avoid inhaling or touching the dust. Some dusts, such as those containing 75% acephate, should kill an entire colony within a week.

Aerosols

Some products are available in aerosol cans equipped with a probe, and contain insecticides that quickly immobilize and kill ants on contact. As the probe is inserted into a mound, the insecticide should be injected into the mound for a specified amount of time. Similar to other individual mound treatments, application on cool, sunny mornings will help maximize contact with the colony.

3. Combining Broadcast Baiting and Individual Mound Treatments

This strategy utilizes the efficiency of broadcast baiting and the fast action of individual mound treatments. Baits must be broadcast first to efficiently reduce fire ant populations. Wait a minimum of 3 days after broadcasting to allow fire ants to forage and distribute the bait before individually treating mounds. Treat mounds preferably with a dust, granular, or aerosol insecticide specifically labeled for fire ant control.

4. Barrier/Spot Treatments

These products are usually sold as sprays or dusts. They may be applied in wide bands on and around building foundations, equipment and other areas to create barriers that exclude ants. They also may be applied to ant trails to eliminate foraging ants. Barrier and spot treatments do not eliminate colonies.

EFFECT OF WATER pH ON EFFICACY OF PESTICIDES



Successful citrus growers should check the soil pH of their groves yearly and do their best to adjust it for better fertilizer efficiency, tree growth, and fruit production. Soil pH is usually increased by liming and decreased by applying sulfur or acid-forming fertilizers. The pH indicates whether the solution or media is acidic or basic (alkaline). The pH scales goes from 0 to 14, where 7 indicates neutrality. Values less than 7 indicate acidic solutions and values greater than 7 indicate a basic condition. Most of Florida fresh waters have pH values between 7 and 8. Although the pH is the most common measured property or characteristic of a solution or a media, some growers and production managers still ignore to adjust the pH of their water when used for pesticide mixing. For better efficacy, anyone involved in pesticide mixing should use a pH meter. The pH affects the rate at which some herbicides are absorbed by plants. Adjusting the pH of the water allows the user to reduce the rates of herbicides without reducing their efficacy. The effectiveness of spray mixture in the spray tank can be affected by a number of

variables. A significant impact on the efficacy of many spray materials is the pH of the water used in the tank. In general, it is desirable to have the pH of the water below 7. Although several chemicals used today are effective at a wide range of pH conditions, many others can be subject to breakdown of the active ingredient at relatively high pH values. With extremely sensitive chemicals, this breakdown can begin between mixing and application. Sevin is among the common pesticides that lose their effectiveness quickly in alkaline (pH values greater than 7) solution. Therefore, it is recommended to reduce the pH of the water in the tank to increase the efficacy of some chemicals. Acidifying agents such as phosphoric acid and citric acid will lower the pH, but can drop it too low. Buffering agents, available from most distributors, will lower the pH to the desired range and help maintain it at that level. It is important to add the buffer to the spray tank water before pesticides are added. **Glyphosate works better when ammonium sulfate is added to the spray tank at rates of 8.5 to 17 pounds for every 100 gallons of spray solution.** Be careful when buffering tank mixes containing copper fungicides. Copper is more soluble in acidic water, and the resulting high concentrations will cause leaf and fruit burn. Aliette makes acid spray. Therefore, do not mix Aliette with copper. Always read the label of the buffering material as well as the label of the pesticide. It is also recommended to ask your chemical supplier for up-to-date information on the susceptibility of a material to hydrolysis. A good rule of thumb is to spray pesticide mixtures as soon after mixing as possible, mix only enough to treat the crop and do not allow the mixture to stand for a long period of time or overnight.

SOIL ACIDITY & LIMING

The optimum soil pH range for citrus trees is 6.0 to 7.0. Trifoliolate hybrid rootstocks such as citrumelos and citranges do better at the low end of this pH range. For sandy soils, one ton of liming material such as dolomite will raise the soil pH by about one unit. Liming acidic soils is economically sound and essential for profitable crop production. Soil pH must be monitored every year through soil testing because development of soil acidity is a continuous process that requires repeated applications of liming materials. Always test your soil before liming. Do not assume that lime is needed.



Problems in very acid soils

- *Aluminum (Al) toxicity to plant roots
- *Copper toxicity in soils that have received repeated Cu fungicide applications
- *Manganese toxicity to plants in continuously wet soils
- *Calcium & magnesium deficiencies
- *Molybdenum deficiency
- *Phosphorus tied up by iron (Fe) & Al
- *Poor bacterial growth
- *Reduced conversion of ammonium to nitrate

Problems in alkaline (high pH) soils

- *Iron deficiency
- *Manganese deficiency
- *Zinc deficiency
- *Excess salts (in some soils)
- *Phosphorus tied up by calcium (Ca) and magnesium (Mg)
- *Bacterial diseases and disorders

Fertilizers. Both organic and non-organic fertilizers may eventually make the soil more acid. For example, transformations of ammonium- (NH_4^+) and urea-based fertilizers into nitrate (NO_3^-) release H^+ that increases soil acidity. Therefore, fertilization with materials containing ammonium or even adding large quantities of organic matter to a soil will ultimately increase the soil acidity and lower the pH.

Raising soil pH (liming acid soils).

Soils are limed to reduce the harmful effects of low pH and to add calcium and magnesium to the soil. Lime reduces soil acidity (increases pH) by reducing the H^+ concentration through neutralization with carbonate (CO_3^{2-}) or hydroxide (OH^-). A Ca^{++} ion from the lime replaces two H^+ ions on the cation exchange complex. The hydrogen ions (H^+) are then reduced and changed into water (H_2O). An acid soil can become more acid as basic cations such as Ca^{2+} , Mg^{2+} , and K^+ are removed, usually by crop uptake or leaching, and replaced by H^+ .

Benefits of liming to correct soil acidity

- *Increased nutrient availability
- *Improved fertilizer use efficiency
- *Increased soil microbial activity
- *Higher nitrogen fixation by legumes
- *Reduced toxicity of copper
- *Solving molybdenum deficiency

*Provision of additional amounts of calcium and magnesium

*Improved soil physical conditions

*Increased cation exchange capacity

*Improved herbicide activity

*Increased growth and crop yield

Lime placement. Since ground limestone is relatively insoluble in water, maximum contact with the soil is necessary to neutralize the soil acidity. Lime will not quickly move into the soil like water-soluble fertilizers. Even though it is usually recommended to thoroughly mix lime with the topsoil, it is not practical to incorporate it in a citrus grove.

Therefore, it will take lime longer to raise soil pH in a grove compared with a field where it is incorporated. As soon as moisture is present, the lime will begin to react. Coarse lime particles react more slowly than very fine particles. Therefore, using very finely ground limestone is necessary to

achieve the desired soil pH change within 4 to 6 months after application.

Overliming. While a correct liming program is beneficial for plant growth, excessive liming can be detrimental because deficiencies and imbalances of certain plant nutrients may result. The practice of estimating lime requirement without a soil test is risky because it can lead to overliming.

Liming materials. The most common liming materials are calcitic or dolomitic agricultural limestone. Calcitic limestone is mostly calcium carbonate (CaCO₃). Dolomitic limestone is made from rocks containing a mixture of calcium and magnesium carbonates. Dolomitic limestone also provides magnesium. Not all materials containing calcium and magnesium are capable of reducing soil acidity. Gypsum (CaSO₄) does not reduce soil acidity.

Lime may be applied at any time during the year to Florida citrus groves.

Calcium sources

Source	Chemical formula	Calcium carbonate equiv. (pure form)
Burned lime (Quicklime)	CaO	179
Hydrated lime (Builder's lime)	Ca(OH) ₂	135
Dolomitic lime	CaCO ₃ • MgCO ₃	109
Calcitic lime	CaCO ₃	100
Basic slag (by-product)	CaSiO ₃	80
Marl (soft carbonates)	CaCO ₃	70 to 90
Gypsum	CaSO ₄	0
Calcium nitrate	Ca(NO ₃) ₂	20
Ordinary superphosphate	Ca(H ₂ PO ₄) ₂ + CaSO ₄	0
Concentrated superphosphate	Ca(H ₂ PO ₄) ₂	0

FLATWOODS CITRUS NEWSLETTER EVALUATION FORM

Please take a moment to rate the quality and usefulness of the information presented in the Flatwoods Citrus newsletter. Please send back the form to:

Dr. Mongi Zekri
University of Florida, IFAS
Hendry County Extension Office
P.O. Box 68
LaBelle, FL 33975

or e-mail to maz@ufl.edu or fax to: 863 674 4636. Thank you for your input!!

Please circle your answer

- | | | | |
|---|-----|------------------------------------|--------------|
| 1 Did the information seem up to date and accurate? | Yes | No | Uncertain |
| 2 Was the information delivered on time to be useful? | Yes | No | Uncertain |
| 3 Was the information relevant to your situation? | Yes | No | Uncertain |
| 4 Was the information easy to understand? | Yes | No | Uncertain |
| 5 Have you had an opportunity to use the information? | Yes | No | Uncertain |
| 6 Have you shared the information with someone else? | Yes | No | Uncertain |
| 7 Overall, how do you feel about the Flatwoods Citrus Newsletter? | | | |
| Satisfied | | Neither Satisfied Nor Dissatisfied | Dissatisfied |

8 **Do you have any suggestions that might improve the newsletter?**

(Please write in any comments)

9. How many years have you been using the Extension Service? _____ Years

10. What is your employment status?

- | | | |
|---|--|---|
| <input type="checkbox"/> Grower | <input type="checkbox"/> Chemical Industry | <input type="checkbox"/> Service Provider |
| <input type="checkbox"/> Production Manager | <input type="checkbox"/> Regulator | <input type="checkbox"/> University |
| <input type="checkbox"/> Consultant | <input type="checkbox"/> Association | Other _____ |

We appreciate your reactions and the time you have given us. Thank you, and please contact us when we may be of service to you.

Citrus Research Field Day

November 15, 2011

You are cordially invited to attend a field day hosted by the University of Florida-IFAS, Gapway Groves, and Orié Lee



PROGRAM HIGHLIGHTS

New Citrus Rootstock Evaluations

- Controlled release fertilizer
- Early fruit production/quality
- Tree size control



Advanced Citrus Production Systems with Open Hydroponics

- High Density planting
- Rootstocks
- Fertigation options and freeze protection
- Narrow tractor equipment, precision agriculture
- Economics

SCHEDULE

Meet at the UF-IFAS-Citrus Research and Education Center, BHG Citrus Hall
700 Experiment Station Road, Lake Alfred, Florida
Check-in begins at 7:30 am and buses will leave promptly at 8:15 am
A sponsored lunch will be provided at the conclusion of the field day.

**Pre-
registration
required
Limited to
the first 200
people**



REGISTRATION FORM

Please email, fax or mail the following information to : Jane Wilson, 700 Experiment Station Road, Lake Alfred, Florida 33850, wilsonmj@ufl.edu, Phone: 863-956-8643 Fax: 863-956-4631

Name: _____

Company: _____

Address: _____

City: _____ State: _____ Zip Code: _____

Phone: _____ Fax: _____

Email: _____

Please register by Thursday, November 10th. Registration will be confirmed by email.

Flatwoods Citrus

If you did not receive the *Flatwoods Citrus* newsletter and would like to be on our mailing list, please check this box and complete the information requested below.

If you wish to be removed from our mailing list, please check this box and complete the information requested below.

Please send: Dr. Mongi Zekri
Multi-County Citrus Agent
Hendry County Extension Office
P.O. Box 68
LaBelle, FL 33975

Subscriber's Name: _____

Company: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____

Fax: _____

E-mail: _____

Racial-Ethnic Background

__ American Indian or native Alaskan

__ Asian American

__ Hispanic

__ White, non-Hispanic

__ Black, non-Hispanic

Gender

__ Female

__ Male