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Institute of Food and Agricultural Sciences

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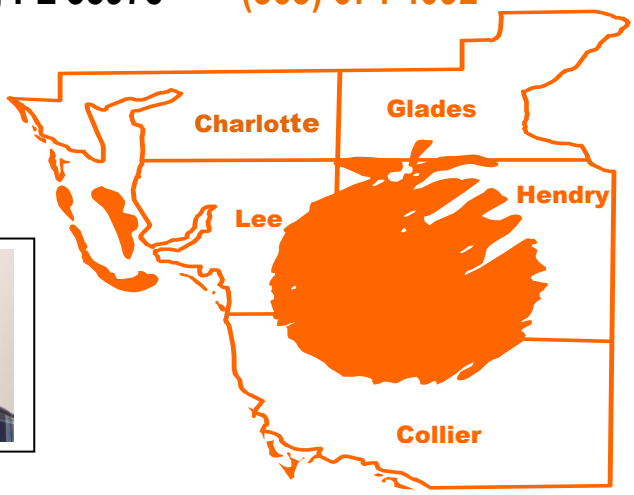
Flatwoods Citrus



Vol. 12, No. 12 December 2009

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

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U P C O M I N G E V E N T S

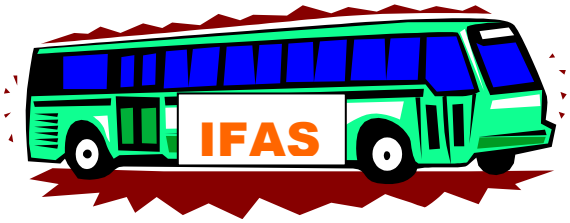
► MECHANICAL HARVESTING UPDATE

Location: **Immokalee IFAS Center**
Date: Tuesday, December 8, 2009, Time: 10:00 AM – 12:00 Noon
1 CEU for Pesticide License Renewal, 2 CEUs for Certified Crop Advisors

Tree Health---Dr. Jim Syvertsen
Abscission---Dr. Bob Ebel
Current Machines---Dr. Reza Ehsani
Harvesting Debris---Dr. Tim Spann
Economics---Dr. Fritz Roka

Go to: http://citrusmh.ifas.ufl.edu/
No registration fee and lunch is free, but **RSVP is required** for planning purposes.
To RSVP, call 863 674 4092 or send an e-mail to maz@ifas.ufl.edu

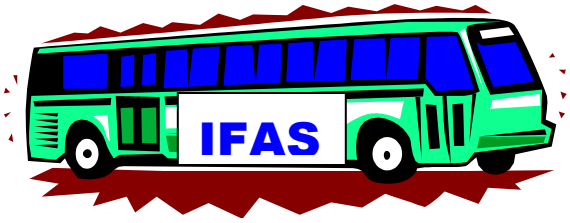
HENDRY COUNTY EXTENSION AG TOURS



Saturday, 5 December 2009
Saturday, 6 February 2009
For more information or to sign up, call Debra at 863 674 4092

http://www.citrusshow.com/?page=reg

COLLIER COUNTY EXTENSION AG TOUR



Wednesday, 10 March 2010
For more information or to sign up, call Robert D. Halman at 239-353-4244

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FUNGI MAY HOLD KEY TO REDUCING GRAPEFRUIT JUICE INTERACTIONS WITH MEDICATIONS

By Sharon Durham

ARS scientists have found that certain fungi can prevent compounds in grapefruits from interfering with some prescription medicines. Photo courtesy of Florida Department of Citrus.

(PhysOrg.com) -- A fungus may help solve a problem of a grapefruit compound that interacts negatively with certain prescription drugs, according to studies by Agricultural Research Service (ARS) scientists.

Grapefruit contains furanocomarins (FCs), which inhibit the enzymatic activity responsible for metabolizing certain prescribed medications and allowing more of the medication to enter the bloodstream. FCs are phytochemicals commonly found in plants. Two well-known phytochemicals are Vitamins C and E.

Grapefruit juice can interfere with the metabolism of certain medications used to treat a wide range of conditions such as allergies, abnormal heart rhythm, depression, hypertension, infections, heart disease, and high cholesterol. The grapefruit industry may have lost customers who no longer drink grapefruit juice due to their medications.
ARS chemists Kyung Myung and John Manthey and microbiologist Jan Narciso at the ARS Citrus and Subtropical Products Laboratory in Winter Haven, Fla., began the study using a fungus—Aspergillus niger—to bind and break down FCs in grapefruit juice.

Grapefruit juice contains three main FCs. Myung found that A. niger either bound these FCs or enzymatically broke them down into other products. Enzymatic inactivation of these compounds may be a means of eliminating them from commercial grapefruit juice, and work to identify these enzymes in A. niger is in progress. A. niger is one of the most common species of the genus Aspergillus that can cause black mold on certain fruits and vegetables but often doesn't cause human disease.

Myung and his team decided to also test edible fungi, or mushrooms. In studies, they found that edible mushrooms such as morels, oyster and button mushrooms—when dried, pulverized and added to grapefruit juice—also removed FCs. That provides researchers with evidence that fungal proteins could be responsible for removing the FCs from the grapefruit juice.

This research was published in the *Journal of Applied Microbiology and Biotechnology* and the *Journal of Agricultural and Food Chemistry*.
Provided by USDA Agricultural Research Service

The University of Florida's Institute of Food and Agricultural Sciences (UF/IFAS) is a federal-state-county partnership dedicated to developing knowledge in agriculture, human and natural resources, and the life sciences, and enhancing and sustaining the quality of human life by making that information accessible. While extending into every community of the state, UF/IFAS has developed an international reputation for its accomplishments in teaching, research and extension. Because of this mission and the diversity of Florida's climate and agricultural commodities, IFAS has facilities located throughout Florida. IFAS is the research and development center for Florida's agricultural and natural resources industries that have a $93 billion annual impact.

While the University traces its roots to 1853 and the establishment of the state-funded East Florida Seminary, UF/IFAS traces its roots to the Morrill Act of 1862, which established the land-grant university system. On July 2, 1862, President Abraham Lincoln signed into law what is generally referred to as the Land-grant Act. The new piece of legislation introduced by U.S. Representative Justin Smith Morrill of Vermont granted to each state 30,000 acres of public land for each senator and representative under apportionment based on the 1860 census. Proceeds from the sale of these lands were to be invested in a perpetual endowment fund that would provide support for colleges of agriculture and mechanical arts in each of the states. The establishment of Florida Agricultural College at Lake City in 1884 under the Morrill Act marked the beginning of what became the College of Agriculture of the University of Florida in 1906.

Florida's governing body for higher education created the Institute of Food and Agricultural Sciences in April 1964, by reorganizing UF's College of Agriculture, School of Forestry, Agricultural Experiment Station, and the Cooperative Extension Service into a single unit. Today, UF/IFAS includes extension offices in each of the state's 67 counties, 13 research and education centers with a total of 19 locations (including demonstration sites) throughout Florida, the College of Agricultural and Life Sciences, the School of Forest Resources and Conservation, the School of Natural Resources and Environment, the Center for Tropical Agriculture, portions of the College of Veterinary Medicine, the Florida Sea Grant Program, and International Programs.

FAWN (Florida Automated Weather Network)

Go to http://fawn.ifas.ufl.edu/
Click on Tools, then click on Cold Protection Toolkit or go directly to
http://fawn.ifas.ufl.edu/tools/coldp/

Then Select a Tool.
New! **Graphic Forecast data for FAWN sites**
National Weather Service (NWS) forecast data for next 96 hours. Updated hourly.
Fruit Frost Station Forecasts
With the demise of the NWS agricultural program in April of 1996 the minimum temperature forecast and winter summaries went away. An opportunity now exists to once again provide temperature forecasts for the old Fruit Frost locations with the development of the Point forecast by NWS.
Minimum Overnight Temperature
Estimates based on the Brunt equation and the air & dew point temperatures at sunset.
Forecast Tracker for FAWN sites
Plots the actual temperature and forecasted temperature for the previous twenty four (24) hours and the forecasted temperature for the next twenty four (24) hours in order to show how well the forecast is tracking the actual temperature. The Forecast Tracker is easy to use with a drop down menu to select the desired FAWN site.
FAWN does not make weather forecasts, but utilizes the National Weather Service products, especially the pin point forecasts. For more information see **JETSTREAM, an online weather school, Pinpoint Forecasts.**
Evaporative cooling potential
Determining the risk of using irrigation for cold protection, and see the risk calculated at FAWN stations.
There is always a risk when using water systems, micro-sprinkler or conventional sprinkler, for cold and/or frost protection. Low humidity and wind can produce evaporative cooling which can chill plant surfaces to the wet bulb temperature. Dry and windy conditions can result in wet bulb temperatures 5F to 6F degrees lower than air temperature. Therefore, wetted plant surfaces that experience evaporation would be 5F to 6F degrees cooler than air temperature. Evaporative cooling may result in plant damage when water is used for cold protection during dry windy conditions. Evaporative cooling should always be taken into consideration.
It is possible that, on nights when temperatures are close to critical levels, introduction of water could produce more damage than would result if no action was taken!
Wet-Bulb Based Irrigation Cutoff Temperature
The safe cutoff temperature based on current FAWN conditions.

CURRENT FLOWER BUD INDUCTION ADVISORY #1 for 2009-2010

Gene Albrigo, Horticulturist , Citrus Research & Education Center, Lake Alfred, FL

This is a weekly or biweekly service to our citrus growers posted on the CREC website**:**
http://www.crec.ifas.ufl.edu/extension/flowerbud/index.htm

Overview of flower bud induction in Florida – Citrus flower bud induction starts in the fall and usually is completed by early January. Low temperatures first stop growth and then promote induction of flower buds as more hours of low temperatures accumulate (below 68 degrees F). A period of high temperatures in winter can then initiate bud differentiation which after sufficient days of warm springtime temperatures leads to bloom. The meteorologists predict that this winter in Florida will be an ENSO-El Niño year, below average temperatures and higher than average rainfall. Under these conditions, more than enough hours of low temperatures below 68 degrees F. usually accumulate to induce a high level of flower buds. Conditions that can interfere with good flower bud induction include: 1) several warm periods interrupting the induction process or 2) the previous crop was exceptionally high or 3) leaf loss from hurricanes, freezes or other causes (canker) were excessive and tree recovery was not complete. Excessive leaf loss leads to low carbohydrate levels in developing buds which reduces their ability to become flower buds. Except for a few trees with freeze damage, none of these adverse conditions appear to be in play for the coming season's flower bud induction.

Under normal Florida weather conditions but with a moderate to heavy previous crop, sufficient flower bud induction should be achieved when total accumulated hours of low temperatures exceed 800 hours below 68 degrees F. If the crop load is light, sufficient flower bud induction may occur after 700-750 hours of accumulated low temperatures. A warm period of 7 to 12 days, with maximum temperatures > 80 to 85 degrees F., can trigger growth (bud swelling) if a minimum total hours of low temperatures have accumulated (300-400 hours below 68 degrees F). An easy way to see if a warm period, which could trigger flower bud growth, is predicted for your specific area in Florida at http://www.nws.noaa.gov/mdl/forecast/text/state/FL.MRF.htm. Some flower buds will be induced in the range of 300 to 450 accumulated hrs < 68 degrees F. Warm events just after these levels of induction result in weak flowering intensity, and therefore many buds remain that can be induced by later cool periods, or these buds may sprout as vegetative shoots if warm weather continues and the trees are well watered. The first situation results in multiple cohorts of flower buds developing to different bloom dates. The second condition leads to low flowering-fruit set and excessive spring vegetative growth. Historically, the time period in which an early warm period (7-12 day) can lead to an initial low number of buds growing and flowering is roughly mid-November to mid-December. Then additional flower buds developing later results in

multiple blooms. Presently, the only management tool available to eliminate or reduce the chance of multiple blooms is sufficient drought stress to stop growth. This water stress may be provided by stopping irrigation well before these predicted warm periods occur. If the warm periods(s) are of the typical 7 to 10 day duration, a coincident short period of drought stress will have little impact on current crop development or quality. Sufficient drought stress may be interpreted as leaf wilt observed by 10 or 11 am, but leaves recovering by early the next morning. If no rains interrupt a drought stress condition in citrus trees, buds will not grow in response to high temperatures. If a warm period has passed, trees again can be irrigated to minimize current crop stress.

In the shallow soils of bedded groves, it is relatively easy to create sufficient water stress to suppress growth by withholding irrigation for a few days if no rains occur. In deeper, sandy soils, 2 or more weeks without irrigation or rainfall may be required. To minimize the time required for soil to dry sufficiently to initiate water stress, the soil should be allowed to dry out by mid-November so that trees show wilt by mid-day. For bedded groves, minimum irrigation can then be applied at low rates as needed until a weather prediction indicates a warm period is expected. At this time, irrigation should be shut down. For deep sands, the soil needs to be dried out and kept nearly dry below 6 to 8 inches of depth until at least Christmas so that no growth can occur. Minimum irrigations that re-wet perhaps the top 6 to 8 inches of the root zone may minimize excessive drought, while allowing quick return to a water stress condition if a high temperature period is forecast. Soil moisture monitoring can help to achieve these goals. Prolonged late-fall, early-winter drought may be risky for 'Hamlin' or other early maturing cultivars not yet harvested that tend to drop fruit near harvest. In recent studies, Valencia trees in Central Florida have had good flowering and no apparent impact on current crop when irrigation was stopped in early December and resumed in the spring. Much of what has been stated above has now been incorporated into a 'Flowering Expert System for Florida Citrus'.

Bi-weekly advisories will follow this preliminary one and update the reader on accumulating hours of related cool or warm temperatures and other weather effects on flower bud induction. Methods for enhancing (urea or PO3 sprays) or reducing (GA3 sprays) flowering intensity as conditions and cultivars dictate will be discussed in later advisories.

Current status for 2009-10 Fall-Winter - The light to medium crops and general tree recovery without a hurricane should lead to a more typical flowering response next spring in Florida. This is supposed to be an **ENSO-El Niño** winter with above average cool temperature accumulation. Warm periods can interrupt the accumulation process and higher than average rainfall could make it more difficult to impose drought stress to prevent an early flowering wave. Currently, citrus locations have accumulated low temperatures < 68 degrees F of 75 to 300 hours from southern to northern areas, respectively. The next 8 days will be good for cool temperature accumulation with another 70 to 90 hours. Continued accumulation of cool temperatures and prevention of growth during a winter warm spell are important for good 2009-10 citrus production. Therefore, start to monitor irrigation amounts so drought stress can occur if a warm period occurs between November 20 and Christmas or occurs before reaching an acceptable level of over 750-800 hours.

Prepare to make groves relatively dry by withholding irrigation if a warm period is predicted. Keep track of induction hours in your area and watch for the next advisory.

If you have any questions, please contact me (albrigo@ufl.edu or phone 863-956-1151).

COLD HARDINESS AND COLD PROTECTION

Two major environmental factors in Florida citrus that regulate cold hardiness are temperature and water.

At 55^0 F, citrus plant growth slows. As temperatures remain below 55^0 F, citrus trees will continue to acquire acclimation to these cooler temperatures. This process is reversible during warm winter periods, and de-acclimation (loss of acclimation) can occur. The greatest amount of citrus acclimation occurs during consistently cool fall and winters. Once de-acclimation occurs citrus trees will generally not re-acclimate to the same level prior to the onset of de-acclimation.

Irrigation and fall/winter rainfall can have a pronounced effect on the citrus acclimation process. Drought induced stress has been shown to increase the tolerance of citrus trees to freezing temperatures when compared to well watered or over watered citrus trees in Florida. However, excessively drought stressed trees are more susceptible to freeze damage.

Critical Temperatures for Florida Citrus

It is very important to know the critical temperature at which freezing temperatures can damage citrus. Minimum temperature indicating thermometers are a wise investment for any grower concerned with freeze/frost protection. Thermometers should be installed in the coldest grove locations. They should be placed at a height of 42 inches (4.5 ft) on a stand, sheltered at the top and facing north. In citrus trees, there can be a great deal of variation in the minimum temperature at which plant damage will occur.

The reference temperature and duration for the initiation of the freezing process in round oranges is 28^0 F for four hours. Tangerines and fruit with smaller mass would receive freeze damage after shorter durations, while grapefruit would require longer durations.

Minimum temperatures of 26^0 F will damage fully mature, harden-off leaves that have not received any acclimation. Minimum temperatures of 30^0 F can significantly damage unhardened new flush leaves. Leaves that have received extensive acclimation have been shown to survive temperatures as low as 20^0 F in Florida.

Protecting citrus trees from cold damage

Cultural practices can have a major influence on the cold hardiness of citrus trees. A clean, hard-packed soil surface intercepts and stores more solar radiation during the day and releases more heat at night than a surface covered with vegetation or a newly tilled area. Irrigation should be applied minimally during the fall and winter. Reducing irrigation results in an increase in the cold tolerance of citrus trees and enhances tree stress resulting in an increase in the formation of flower buds. Excessive application of nutrients should be avoided late in the fall especially with young citrus trees. Heavy hedging or topping during the winter can reduce citrus cold hardiness by reducing canopy integrity that would trap heat released by the soil. This should be avoided.

Water from micro sprinkler irrigation protects young trees by transferring heat to the tree and the environment. The heat provided is from two sources, sensible heat and the latent heat of fusion. Most irrigation water comes out of the ground at 68° to 72°F, depending on the depth of the well. The major source of heat from irrigation is provided when the water in the liquid form changes to ice (latent heat of fusion).

As long as water is constantly changing to ice, the temperature of the ice-water mixture will remain at 32°F. The higher the rate of water application to a given area, the greater is the amount of heat energy that is applied. When expecting a freeze, turn on the water early before the air temperature reaches 32^0F. Remember that in cold pockets, the ground surface can be colder than the air temperature reading in a thermometer shelter. Once irrigation has begun, the system must run for the duration of the time plant temperatures are below the critical temperature. Growers are recommended to use the information at the FAWN website (**http://fawn.ifas.ufl.edu**) to determine when it would be safe to turn off or on their micro-sprinkler irrigation system. For more details, go to http://edis.ifas.ufl.edu/HS179, http://edis.ifas.ufl.edu/CH182, http://edis.ifas.ufl.edu/CH054

In bedded groves to provide additional cold protection, water should also be pumped high in the ditches the day before and during the time of freezing weather.

GROWERS CAN PROFIT FROM PARKING CARBON ON THEIR FARMS

When major events come to the fairgrounds, people who live nearby can make extra money by charging visitors to park cars on their front lawns. In much the same way, people who have a place to capture carbon on earth can profit by supplying carbon parking.

Carbon, element 6 on the periodic table, is a building block of all living things. Carbon is released into the atmosphere as carbon dioxide gas when animals breathe and when their wastes break down. Plants take up carbon when they grow and release it when they decay. But modern society has opened the spigot. Volumes of carbon flow into the atmosphere when fossil fuels are burned, when forests are harvested or when soils are intensively tilled.

Carbon and other gases collect in the upper atmosphere, forming a barrier that slows the release of the sun's heat back into space. For this reason, they are being called "greenhouse gases" and are being blamed for climactic changes worldwide.

Even though carbon doesn't represent all the gasses that are causing the greenhouse effect in the Earth's upper atmosphere, because it is the most abundant, it has become the standard measurement unit for greenhouse gases, giving rise to a new world currency -- "carbon credits."

Terrestrial carbon parking is one way to earn carbon credits. Scientists are studying several options for parking carbon – forestland owners can pledge to not harvest for a long period of time, industry may be able to pump and trap carbon-rich emissions deep in the ocean and, farmers can store carbon in their soil, slowing gaseous emissions to the atmosphere. Experts agree that carbon parking is not the solution to global warming, but it is a way to buy some time while other strategies to reduce emissions of carbon into the atmosphere are being developed.

Strategies for taking advantage of carbon parking

- Investigate opportunities to register the farm's baseline of greenhouse gas emissions. Once the baseline is established and documented, the grower/farmer will be able to take credit for any reduction in emissions from that point on.

- Join forces with other farmers. Large companies interested in purchasing carbon emission credits will not want to deal with individual agricultural entities, but may be interested in working with groups that can aggregate parking for thousands of tons of carbon.

IMPORTANCE OF FERTILIZERS

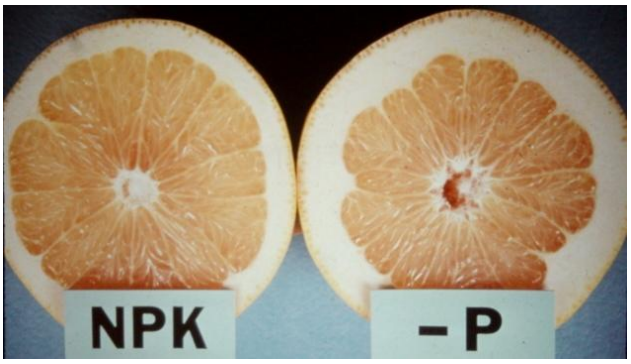
Let's talk about Phosphorus (P).

Meeting the world's escalating food needs cannot be achieved without fertilizer input. Without fertilizer, the world would produce only about half as much food and more forested lands would have to be put into production. Inorganic commercial fertilizer plays a critical role in the world's food security and is important from both yield and food quality perspectives. Intensification of production and increasing yield on limited arable land is clearly important in securing an adequate food supply, and the role of fertilizer in this is very critical.

Intensification of production will be increasingly essential to the challenge of meeting future food demands. However, this intensification must be done so as to minimize environmental impacts. The Nutrient Stewardship Framework (right fertilizer source, right rate, right time, and right place) is therefore very important.

Let's talk about Phosphorus (P).

Growth is reduced when the supply of P is too low. Phosphorus moves from older to younger tissues. Therefore, deficiency symptoms appear first on older leaves, which lose their deep green color. Leaves are small and narrow with purplish or bronze, lusterless discoloration. Some leaves may later develop necrotic areas and young leaves will show reduced growth rate. Leaves shed prematurely and fruit can drop before normal harvesting time. Trees will exhibit limited flower development with reduced fruit set and fruit yield.



The fruit will be coarse and rough in texture with a coarse, thick rind and a hollow core. The fruit will also have a high acidity in proportion to total soluble solids. Thus, fruit maturity will be delayed. Usually, the roots are stunted and poorly branched.

The cause of P deficiency is a lack of available P in the soil. Phosphorus deficiency may occur in areas of high rainfall due to leaching and erosion. In strongly acidic soils, P can become quickly unavailable. Phosphorus availability is also reduced in calcareous soils.

Phosphorus deficiency can be corrected by applying water-soluble P fertilizer to the soil **after confirmation of low to deficient levels of P by leaf and soil analysis.**

UNIVERSITY OF FLORIDA | EXTENSION
Institute of Food and Agricultural Sciences

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Flatwoods Citrus

TOPICS DISCUSSED IN THE FLATWOODS CITRUS NEWSLETTER -YEAR 2009-

January	shipping home grown citrus fruit from Florida; current flower bud induction advisory; fertilizer prices: big changes ahead; factors affecting bloom, fruit production and quality; hedging and topping citrus trees
February	climate phase forecast; citrus demand lessening and growers are hurting; USDA to buy $26m in orange juice inventories; citrus forecast reduced; nutrition of citrus trees; assessing freeze damage; citrus health response program update; HLB scouting
March	citrus greening research breakthrough; sprayer calibration; importance of spreader calibration and maintenance; irrigation; salinity; citrus scab; fresh vs. processed fruit management decisions; effect of water pH on pest-control materials; water quality affects herbicide efficacy; pesticide recordkeeping-benefits & requirements
April	UF/IFAS citrus leaders join forces to combat industry-threatening diseases; increasing efficiency and reducing cost of nutritional programs; foliar feeding; spider mites; owners get tax break; citrus health response program update
May	greasy spot; southeast climate consortium; citrus psyllid and citrus leafminer; Florida state horticultural society; the nineteenth annual farm safety day
June	prepare and stay aware!; when is hurricane season?; pre-storm preparation; some strategies for psyllid management; greening costs; micronutrients in citrus production; Florida's certified pile burner training; farm service agency
July	NOAA issues Atlantic hurricane season outlook, encourages preparedness; drainage; frequently asked questions about biosolids; leaf and soil sampling and analyses to adjust fertilizer programs; calcareous soils; gulf citrus growers association scholarships
August	citrus fruits check obesity, diabetes; despite freezes, citrus growers prospered this year; greening research funds approved; citrus rust mites; citrus health response program update, abandoned grove initiative; weed control in citrus groves; phytophthora; Diaprepes; Agroclimate
September	woman fights cancer with fruit juice; citrus blight; pesticide resistance and resistance management; brown rot; leprosis; black spot; acidification to remove mineral deposits in irrigation systems; chlorination to control algae and bacteria in irrigation systems
October	fall nutrition of citrus trees; soil acidity & liming; effect of water pH on efficacy of pesticides; commercial citrus inventory - preliminary report; summary of SW Florida citrus; cooperative dormant spray program against Asian citrus psyllid in SW Florida
November	how to reduce drift?; save money by adapting mechanical harvesting; fire ants; increasing efficiency and reducing cost of nutritional programs; low volume applications for psyllid control; thinking ahead-resetting; regional citrus psyllid suppression plan; importance of fertilizers-let's talk about Potassium (K)
December	fungi may hold key to reducing grapefruit juice interactions with medications; UF-IFAS; FAWN; current flower bud induction advisory; cold hardiness and cold protection; growers can profit from parking carbon on their farms; importance of fertilizers-let's talk about Phosphorus; SECC winter climate outlook; winter weather watch; gulf citrus growers association (GCGA); GCGA scholarship

SECC WINTER CLIMATE OUTLOOK

El Niño in charge in the Pacific Ocean

The Pacific Ocean is firmly entrenched in the El Niño Phase. Ocean temperatures over the past few months have continued to warm in the eastern and central tropical Pacific Ocean and are now over 1.0 degree C warmer than normal over a large area. Sea surface temperatures in this region of 0.5 degree C warmer than normal are the commonly used threshold to designate El Niño conditions. 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. Once surface temperatures warm to over 1.0 degrees C the El Niño is considered moderate in strength (the three classifications are weak, moderate, and strong). This warming began in May and has continued through the summer and fall months. The development of this El Niño follows the typical life cycle of building in the summer and fall months before reaching peak strength in mid winter.

Modeling centers around the world that predict El Niño/La Niña agree that waters will continue to warm and result in at least a moderate El Niño during the winter and spring months. There is a small chance that the El Niño will reach the strong category. There is no chance of La Niña returning in the near future and very little chance of neutral conditions.

El Niño brings excess rain and storminess to parts of the Southeast.

In December through March El Niño typically leads to rainfall 40% to 50% greater than normal over the peninsula of Florida.

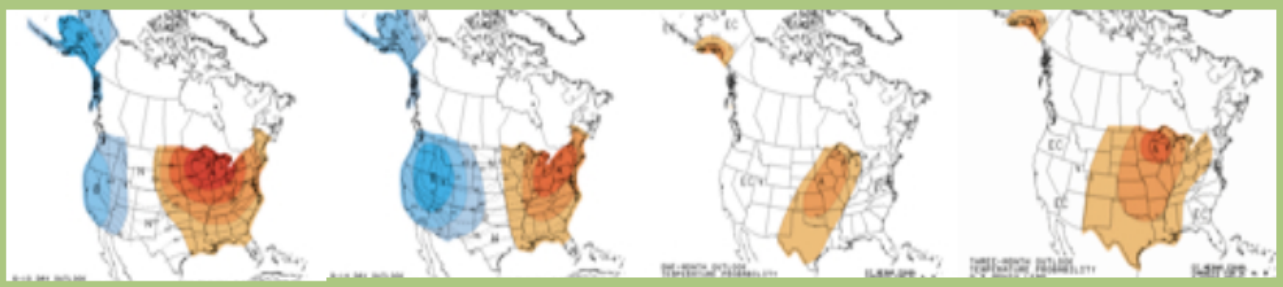
Cooler temperatures expected, but not necessarily severe freezes. In addition to the increased rain and storminess, El Niño is also associated with cooler winter temperatures over the entire Southeast. Winter temperatures generally run from 2 to 4 degrees F cooler than normal during El Niño winters. The greater number of cloudy and rainy days are primarily responsible for the cooler temperatures, as the change is seen more in afternoon high temperatures rather than morning lows. The cooler temperatures lead to greater accumulation of chill hours, which are necessary for proper reproduction and fruit setting for flowering fruits such as peaches, blueberries, and strawberries.

While El Niño is known to bring cooler temperatures, the risk of extreme cold weather or damaging freezes is actually lower than normal. We believe that the same jet stream patterns that lead to frequent storminess also tend to "block" the intrusions of frigid arctic air masses that usher in extreme low temperatures. Of the dozen or more catastrophic freezes to hit the Southeast in the last century or more, almost all happened when the Pacific Ocean temperatures were in the neutral range rather than El Niño or La Niña.

Increased risk of severe weather over Florida. Bart Hagemeyer, meteorologist in charge of the National Weather Service Forecast Office in Melbourne, FL, has demonstrated a clear connection between El Niño and winter tornado outbreaks in Central Florida. Once again tied to changes in the jet stream patterns, El Niño creates an environment of higher upper-level winds and increased vertical shear (winds changing direction with height), conditions which are necessary for the development of strong and long path tornadoes. The two of the deadliest tornado outbreaks in the history of Florida (February 1998 – 42 dead, February 2007 – 21 dead) both occurred during El Niño winters.

For more detailed information on El Niño climate shifts in your particular county, please refer to the Climate Risk Tool at AgClimate http://agroclimate.org/

Winter Weather Watch



Get the Subscription Form

October 2, 2009

UF/IFAS Polk County Cooperative Extension Service

The 2009-10 version of the Winter Weather Watch will begin on Sunday, November 1, 2009 with a free trial offer for growers interested in winter weather forecast information. Call 863-904-0268 for the forecasts.

The 2009-10 edition of the Polk County Winter Weather Watch program will begin on November 15, 2009. The program provides growers with winter weather forecast information specifically geared toward agricultural interests in West Central and South Florida. The program provides subscribers with an unlisted phone number for (24 hour/7 days a week) access to daily weather forecasts. The zone forecasts are from the National Weather Service (NWS) and are listed on the automated phone menu, so you can select the products you are interested in. Forecasts include the zone forecasts, 6-10 and 8-14 day outlook forecasts. In addition to the forecasts we have special weather narratives provided as needed in the event of freezing temperatures and a weekly outlook. When freezing temperatures are predicted in our area additional updates will include the afternoon zone forecast and the modified sunset brunt minimum temperature equation. If this is not enough we will also provide the weekly citrus leaf freezing temperatures and the 2009-10 Winter Weather Watch manual.

Subscriptions for the Winter Weather Watch program are only $100.00 for the entire 4 month period (Nov 15 to Mar 15). The cost is about the same as one tank of gas for your pickup truck. You can subscribe to the Winter Weather Watch by linking to the "get the subscription form" above.

Free Trial Offer for Interested Growers

This year we will be offering a free trail offer for growers interested in trying-out the Winter Weather Watch. From November 1, to November 14, 2008. Growers will be able to call in and get the scheduled weather forecasts. After the trial period growers must subscribe for continued uninterrupted access.

FORECAST SCHEDULE

Product	Above 32 ^{0} F	32^0-29^{0}F	Below 28^0 F
Zone	Daily 8:30 a.m.	Daily 8:30 a.m.	Daily 8:30 a.m.
6-10 & 8-14 Day Outlooks	Mon/Wed/Fri 8:30 a.m.	Mon/Wed/Fri 8:30 a.m.	Mon/Wed/Fri 8:30 a.m.
Weekly Outlook	Friday 5:00 p.m.	Friday 5:00 p.m.	Friday 5:00 p.m.
Leaf Freezing Temperatures	Friday 5:00 p.m.	Friday 5:00 p.m.	Friday 5:00 p.m.
Special Weather Narratives	As Needed	Daily 4:00 p.m.	Daily 4:00 p.m.
Afternoon Zone Forecasts	None	Daily 5:30 p.m.	Daily 5:30 p.m.
Sunset/Brunt Forecast	As Needed	As Needed	Daily 7:00 p.m.

2009 – 2010 WINTER WEATHER WATCH PROGRAM

NOVEMBER 15, 2009 TO MARCH 15, 2010
REGISTRATION FEE: $100.00

It's once again time to register for the upcoming 2009 - 2010 Winter Weather Watch Program. Upon receiving your $100.00 registration payment, you will be sent an unlisted telephone number with which you can retrieve the latest **Ag Forecasts**, 24 hours a day. **Please do not give this number to others**. The *Winter Weather Watch Program* is funded by the registration fees to pay for telephone equipment rentals, long distance calls, repairs and meteorologist.

2009 – 2010 Winter Weather Watch Program

NAME:_____ Phone Number:_____

COMPANY:_____

MAILING ADDRESS:_____

CITY:_____ZIP CODE:_____

REGISTRATION FEE $100.00

PLEASE RETURN THIS REGISTRATION FORM AND YOUR CHECK PAYABLE TO:

POLK COUNTY CITRUS ADVISORY COMMITTEE
PO BOX 9005, DRAWER HS03
BARTOW, FL 33831-9005

Florida Gulf Citrus Growers Association

Florida Gulf Citrus Growers are good neighbors and good stewards of the land. They are keenly aware that they must carefully balance the needs of the environment and the needs of citrus growing. This delicate balance starts in the basic design of the groves, and then to the use of the latest technology and the most progressive management practices. All these factors enable Florida Citrus Growers to be sustainable in this region. Growers carefully manage the water resources through state-of-the-art low volume computerized irrigation systems, spraying water directly to the root zone. There are many other positive impacts that citrus groves have on the environment. Go to http://www.gulfcitrus.org/ and become a member or an associate member.

GULF CITRUS GROWERS ASSOCIATION SCHOLARSHIP FOUNDATION, INC.

Membership:
Membership in the Scholarship Foundation is open to all Gulf Citrus Growers Association (GCGA) members for just $25 per year. Members are able to vote for and serve on the Board of Directors for the Foundation.

Donations:
Donations are a crucial source of funding for scholarship awards and may be made to the Foundation at any time during the year in any denomination, **regardless of membership status**. Checks should be made payable to the Foundation. For more details, please call the GCGA office at **863 675 2180**.
The GCGA Scholarship Foundation is a non-profit corporation operating under Section 501 © (3) of the Internal Revenue Code. Contributions are tax deductible as allowed by law.

Gulf Citrus Growers Association Scholarship Foundation, Inc.

P. O. Box 1319, LaBelle, Florida 33975 (863) 675-2180 / Fax: (863) 675-8087 / Email: gulfcitrus@embarqmail.com

About the Gulf Citrus Growers Association

The citrus growers of southwest Florida are committed to supporting education as a long-term investment in the future of our industry. The first Gulf Citrus scholarship was awarded in 1992 through the Gulf Citrus Growers Association, a trade organization representing growers in Charlotte, Collier, Glades, Hendry and Lee Counties.

The Gulf Citrus Growers Association Scholarship Foundation was established in 2000 as a non-profit entity to oversee the distribution of these awards. Scholarship applications are accepted throughout the year and are reviewed semi-annually by a Scholarship Selection Committee comprised of academic and industry members. The number and amount of awards vary depending upon the number of applications received and available funds.

Applicants who are not selected may submit a new application for consideration in the next selection cycle. Previous award winners may also reapply.

Scholarship Criteria

Preferred requirements for scholarships are as follows:

AA, BS, MS and **PhD Degrees:**

- Completion of all placement testing and a **declared major** in agriculture or related major.
- Completion of **12 credit hours** towards agriculture or related degree.
- Minimum overall grade point average of **2.5** for a BS degree; **3.0** for MS and PhD degrees.
- A demonstrated **commitment** to complete the degree at a state college, community college or university.

Applicants must complete the attached application, which includes a statement of release giving the selection committee permission to verify information submitted.

*****APPLICATION DEADLINES ARE DECEMBER 31 AND JULY 31*****

Gulf Citrus Growers Association Scholarship Foundation, Inc.

P. O. Box 1319, LaBelle, Florida 33975 (863) 675-2180 / Fax: (863) 675-8087 / Email: gulfcitrus@embarqmail.com

Scholarship Application

Personal Data

Name: _____Student # or SS #:_____

Home Address: _____

City/State: _____ Zip: _____ Phone: _____

Mailing Address: _____

City/State: _____ Zip: _____ Phone: _____

E-mail: _____

Employer: _____

Address: _____

City/State: _____ Zip: _____ Phone: _____

Does your employer reimburse you for tuition or other expenses incurred toward your degree?
Yes ____ No _____

Educational Information

College or University in which you are enrolled: _____

Department / Degree Program: _____

I am working toward the following: AA ____ BS _____ MS _____ PhD _____ Other _____

Courses Taken in Major *(completed)*:

_____

_____

_____

_____

Courses (*in which you are currently enrolled)*:

_____

_____

Total Credit Hours Toward Degree: _____ Cumulative Grade Point Average (GPA): _____

Expected Date of Graduation: _____

Please answer the following questions in complete sentences with as much detail as possible.

What are your career goals? _____

_____

_____

_____

_____

What is the potential value of your education to the citrus industry *in southwest Florida*?

_____

_____

_____

_____

_____

I authorize the release of this application and any relevant supporting information to persons involved in the selection of recipients for Gulf Citrus Growers Association scholarships.

_____

Applicant's Signature Date

*****APPLICATION DEADLINES ARE DECEMBER 31 AND JULY 31*****

Please return this application with your official transcripts to:

Gulf Citrus Growers Association Scholarship Foundation, Inc.
Dr. Mongi Zekri, Application Coordinator
Hendry County Extension Office
P. O. Box 68
LaBelle, FL 33975
Phone: (863) 674-4092 / Fax: (863) 674-4636
E-mail: maz@ifas.ufl.edu