UF UNIVERSITY of FLORIDA | IFAS EXTENSION

# Citrus Notes

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## December 2009

### Inside this Issue:



***Dear Growers,***

***Our December OJ Break in Polk County is scheduled for Thursday, December 10, 2009. We will be meeting at the Polk County Cooperative Extension Service's Stuart Conference Center, 1710 Highway 17 S. in Bartow. This OJ Break will specifically address the topic of wide area sprays for psyllid control and the formation of "Coordinated Psyllid Control Districts". Dr. Gene Albrigo (Citrus Horticulturalist, Citrus Research and Education Center, Lake Alfred) has started his citrus flower bud induction advisories and the first one of the season is included in the bud induction article. We have also scheduled our January 2010 Citrus Roundtable for Wednesday, January 6, 2010 at the Gulf Coast Research and Education Center. In pesticide news and information there are a couple of articles, one on fire ants and the other on the development of blight resistant American Chestnuts.***

***Enjoy the issue,***

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## *Coordinated Psyllid Control Districts December OJ Break*

This month we will be back in Bartow for our December Polk County OJ Break Grower Meeting. The OJ Break will be held on Thursday, December 10, 2009, at the Stuart Conference Center at 1710 Highway 17 S. beginning at 9:00 a.m. This month we are going to outline and discuss the benefits and the development of Coordinated Psyllid Control Districts (CPCD) in Polk County. There will be 2.5 CEU's available for your Restricted Use Pesticide license for attending the OJ Break. Lunch will be served after the OJ Break complements of Syngenta Crop Protection and Triangle Chemical Company. **You will however need to preregister by calling Gail Crawford at 863-519-8677 or by emailing me at wcoswalt@ufl.edu by next Tuesday, December 8, 2009.**

Currently in Polk County we have a number of growers that have spearheaded local coordinated psyllid spray applications and there is considerable interest in expanding these areas into CPCD's. You may be asking what does this entail? CPCD's are the local coordination of Asian citrus psyllid suppression control spray applications made over a specific period of time (10-14 days) over a large geographical area. These large geographical areas are not necessarily composed of large growers but the cooperation of many growers, large and small, within a CPCD.

CPCD coordinators will track grower participation within a district and offer guidance in securing contractional resources to apply psyllid sprays during this specific time period. Application methods will be left entirely up to the growers discretion. Currently aerial, low volume and ground sprays have been demonstrated to be effective. By having CPCD's, growers can potentially realize significant application savings by pooling these efforts together to treat large areas at essentially the same time. This program is developed to encourage the initial implementation of a single winter 2010 psyllid control application. If successful, this could be expanded to include additional coordinated efforts at other times of the year but, for our initial purposes we are targeting the winter 2010 spray application.

You only have to look at the situation in south Florida to see the future of dealing with this devastating disease. Extraordinary times call for extraordinary efforts. Researchers continue to work on long term solutions to this disease but in the interim, profitable citrus production in Florida is considerable much more manageable with slowing the spread of this disease.

"A good plan executed today is better than a perfect plan executed at some indefinite point in the future."
**General George Patton Jr**

In closing, my thoughts are that the current recommendations of psyllid suppression and symptomatic tree removal are undeniable tied together in reducing the spread of citrus greening. How much does one factor or the other contribute to disease spread? I do not have that answer but, I will say that without the psyllid vector you would not have disease transmission. Our ultimate **short term goal** may optimistically be to slow the spread of this devastating disease by controlling the vector.

We have enlisted Dr. Michael Rogers (UF/IFAS Citrus Research and Education Center),

Jeff Summersill (aerial applicator TRS Ag Services), Todd Holtsberry (low volume custom applicator Standard Citrus Scouting) and a number of folks involved in the current Polk County efforts of coordinated psyllid sprays to discuss their results and efforts controlling the Asian citrus psyllid at our OJ Break.

### *2009-10 Winter Weather Watch*

We started the 2009-10 Winter Weather Watch program on November 15, 2009. This year we updated the Winter Weather Watch Manual with a new chapter on blueberry cold protection. If you have not registered yet, contact Gail at 863-519-8677 for registration information.

### *January 2010 Citrus Roundtable Meeting*

We will be back in Hillsborough County on Wednesday, January 6, 2010, for our Hillsborough County Citrus Roundtable. This month we will be holding our meeting at the Gulf Coast Research and Education Center located at 14625 CR 572 in Balm. The meeting will begin at 10:00 a.m. and last to about 11:00 a.m. This month Dr. Tim Spann will be talking about the effect of enhanced citrus nutritional programs on the yield and fruit size of trees with and without citrus greening symptoms.

### *Flower Bud Induction Advisory*

(From: Dr. Gene Albrigo Horticulturist CREC)

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). Later in the winter when the accumulated cool temperature induction hours are high, fewer days and lower daytime highs (75 degrees F.) are required in a warm period to stimulate growth of buds. Weather information relative to Florida citrus flower bud development for the current and several previous years (back to 1998) can be obtained from the Florida Automated Weather System (fawn.ifas.ufl.edu) for locations near you. An 8 day forecast from the National Weather Service predicts Florida weather for several sites around the citrus belt for the next week. Find this information at: http://www.nws.noaa.gov/mdl/forecast/text/state/FL.MRF.htm. This is an easy way to see if a warm period, which could trigger flower bud growth, is predicted for your specific area in Florida.

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. During the years from 1963 to 2003, multiple blooms occurred in over half of the years. 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. Although no weather prediction is guaranteed, rains in the winter usually come on the fronts for cool periods. Sufficiently cool temperatures after a cold front rain will usually prevent growth even though soil moisture is adequate for growth. Since winter rains usually occur just before cool temperatures, the chances that drought stress will prevent an early flower bud differentiation event are reasonably good for many warm periods. Even so, growers in some growing districts have often found it difficult to maintain winter drought 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 the 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'.

The system will be available on-line again this year, but a new server location is being set-up. I will announce its location on our Website when it is available.

Keep up with Gene's update at the following website:
http://www.crec.ifas.ufl.edu/extension/flowerbud/2010/11_12_09.htm .

## *Pesticide News and Information*

### Fire Ant War Continues

Fire ants escaped from South America in the early 20th century and, with little competition and no natural enemies, quickly became a major pest in the southeastern United States. Knowing that phorid flies were ant decapitators, scientists began releasing the flies as a biocontrol agent in the 1990s in the United States. But scientists didn't know which chemical cues guided flies to their victim ants, and the control efforts, while successful in some areas, have not yet fully managed the stinging pests.

Fire ants have more than ten glands, and which ones held the attractant wasn't clear, says entomologist Henry Fadamiro of Auburn University in Alabama, who led the research.

Fadamiro and colleagues hooked electrodes up to the antennae of flies to investigate which of several stimuli prompted nerves to fire. By exposing the antennae to extracts from different ant glands and body parts, the researchers determined that fluid from the venom glands excited the antennae. Separating the venom into its chemical components allowed the team to pinpoint specific compounds that the flies favored. Further tests, in which flies chose their favored scent, confirmed the antennae tests.

In South America, fire ant densities are one-tenth to one-fifth what they are in the United States, notes entomologist Sanford Porter, a fire ant specialist with the U.S. Department of Agriculture's Agricultural Research Service in Gainesville, FL. South America has phorid flies and other natural fire ant enemies that control the population, he says. "We hope if we get the right combination that these biocontrol methods will begin to really make a difference."

Designing baits with attractants may help researchers monitor fly populations and understand where flies thrive. This in turn could

reveal where the flies will be most successful in suppressing ant populations. Fire ants are typically not afraid of anything Fadamiro notes. But when phorid flies, half the size of a grain of rice, begin to hover nearby, the ants "start to run helter-skelter," he says. And with good reason. If an ant doesn't get a move on, the fly drops down and deposits her egg in the ant's chest. For a few days, fly-carrying ants walk around normally. By two weeks later, the ant is in a daze and other ants remove it from the colony. By then the fly has migrated to the ant's head and is ready to pupate. It begins to secrete enzymes that decapitate the ant. Scientists aren't sure why the flies bother to cut off the head. It may serve as an escape pod from residual toxins in the near-empty body. (*ScienceNews*, 9/18/09).

**Chestnut Blight in North Carolina**

Five hundred blight-resistant American chestnut saplings are thriving a year after they were planted in three national forests, a milestone in the long-term effort to re-establish the tree in its native habitat. Reviving the chestnut, decimated by a fungus, would reverse one of the worst ecological disasters in the nation's history, reviving a major source of food and lumber that forest animals and humans have missed for more than a century. The genetic research that offers the promise of a blight-resistant hybrid could, if successful, also be used to stop the damage to U.S. forests by other exotic pests, such as bark beetles, the woolly adelgid and Dutch elm disease. "If it works, there is a long line of similar ecological problems that are waiting for similar kinds of solutions," said Ron Sederoff, a professor in the Department of Forestry and Environmental Resources at N.C. State. "There are 100 different threatened trees in our American forest, and each one has a disease or a pest that potentially could do as much damage as the blight did to the American chestnut." [*News-Observer*, (NC), 9/25/09].