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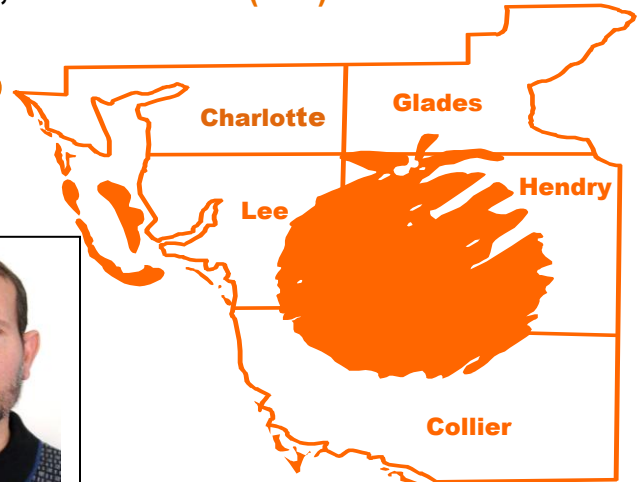
Flatwoods Citrus

**Have a Happy Holiday Season
and a Productive New Year!!!**

Vol. 11, No. 1

January 2008

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



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

CITRUS PRODUCERS MEETING

- Update, identification, and scouting for citrus greening
- Dormant sprays of broad-spectrum insecticides: Effects on Asian citrus psyllid (*Diaphorina citri*) and its natural enemies in oranges
- New Delegate insecticide for insect control in citrus

2 CEUs for Pesticide License Renewal, 2 CEUs for Certified Crop Advisors

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

Date: Tuesday, January 8, 2008, 12:00 Noon - 2:00 PM

Location: Immokalee IFAS Center

If you want to print a color copy of the **Flatwoods Citrus** Newsletter, get to the **Florida Citrus Resources Site** at <http://flcitrus.ifas.ufl.edu/>
You can also find all you need and all links to the University of Florida Citrus Extension and the Florida Citrus Industry

THE INDIAN RIVER CITRUS SEMINAR

January 23-24, 2008

St. Lucie County Fairgrounds, Ft. Pierce, FL

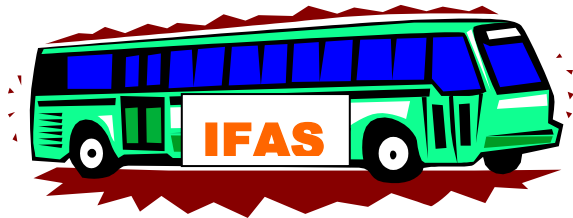
For information and registration, visit

<http://floridagrower.net/flgevents/>

For more details on registration and scheduled presentations, please find enclosed the Indian River Citrus Seminar Brochure



ANOTHER HENDRY COUNTY EXTENSION AG TOUR

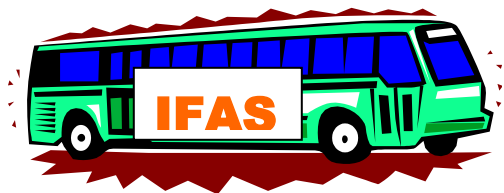


Saturday, 2 February 2008

For more information or to sign up,
call 863 674 4092

COLLIER COUNTY EXTENSION AG TOUR

Date: Wednesday, 12 March 2008



For more information or to sign up,
Contact Robert Halman

Phone: 239 353 4244

rdhalman@ifas.ufl.edu

How to collect tissue samples for citrus greening testing and how to submit samples to the lab for analysis?

Information is included in this issue. For details, get to the following webpage:
Sampling Protocol for Submission of Huanglongbing (syn= Greening or HLB)
Samples to the Southern Gardens Diagnostic Laboratory

<http://www.hccga.com/posgreen/061221mikeirey.pdf>

Special Thanks to all the sponsors of the Flatwoods Citrus newsletter for their generous contribution and support. If you would like to be among them, please contact me at 863 674 4092.

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HEDGING AND TOPPING CITRUS TREES

Hedging and topping is another important cultural grove practice during late fall and winter. Severe hedging or topping of citrus trees during the winter can reduce cold hardiness. Trees with exposed internal scaffold wood and new tender growth are more susceptible to cold injury.

In general, tree response to hedging and topping depends on several factors including variety, tree age, vigor, growing conditions, and production practices. No one system or set of rules is adequate for the numerous situations encountered in the field. Growers are encouraged to gain a clear understanding of the principles involved in hedging, topping, and to take advantage of research results as well as consulting knowledgeable colleagues and custom operators for their observations.



Hedging should be started before canopy crowding becomes a problem that would cause cutting of small branches. Removal of a significant portion of the tree will result in

excessive vegetative growth and a drastic reduction in subsequent yield. Hedging is usually done at an angle, with the boom tilted inward toward the treetops so that the hedged row middles are wider at the top than at the bottom. This angled hedging allows more light to reach the lower skirts of the tree. Hedging angles being used vary from 0 to 25 degrees from vertical, with 10 to 15 degrees being more commonly used.



Topping should be done before trees have become excessively tall and should be an integral part of a tree size maintenance program. Long intervals between topplings increases the cost of the operation due to heavy cutting and more brush disposal. Excessively tall trees are more difficult and expensive to harvest and spray. Topping trees will increase fruit quality and size. Some common topping heights are 12 to 14 ft at the shoulder and 15 to 16 ft at the peak.



Excessive nitrogen after severe hedging or topping will produce vigorous vegetative growth at the expense of fruit production. Therefore, nitrogen applications should be adjusted to the severity of hedging and/or topping. Reducing nitrogen applications avoids an imbalance when heavy pruning is done. Reducing or omitting a nitrogen application before and possibly after heavy hedging will reduce both costs and excessive vegetative growth. However, light maintenance hedging should not affect fertilizer requirements.

Large crops tend to deplete carbohydrates and results in a reduced crop and increased vegetative growth the following year. Pruning after a heavy crop additionally stimulates vegetative growth and reduces fruit yield the following year. Pruning after a light crop and before an expected heavy crop is recommended because it can help reduce alternate bearing which can be a significant problem in Valencia and Murcott production.



Severe hedging stimulates vigorous new vegetative growth, especially when done before a major growth flush. This happens because an undisturbed root system is providing

water and nutrients to a reduced leaf area. The larger the wood that is cut, the larger is the subsequent shoot growth. Severe pruning reduces fruiting and increases fruit size.

The best time of year to hedge and/or top depends on variety, location, severity of pruning, and availability of equipment. Since pruning is usually done after removal of the crop, early maturing varieties are generally hedged before later maturing varieties. Many prefer to hedge early before bloom, but they may also get more vegetative regrowth, which may not be desirable. Pruning could begin as early as November in warmer areas. Valencia trees may be hedged in the late fall with only minimal crop reduction when the hedging process removes only a small amount of vegetative growth. In cases where excessive growth is to be removed, the trees are usually harvested before hedging is conducted. Light maintenance pruning can be done throughout the summer and until early fall with little or no loss in fruit production. Moderate pruning should not continue late into the fall in freeze-prone areas, as trees with tender regrowth are more susceptible to cold injury. With the finding of citrus greening disease, selecting the best time for hedging and topping is becoming more complicated. New growth flushes promoted by hedging and topping in late spring, during the summer, and early fall can increase the population of psyllids and aggravate the spread of citrus greening. For more details, go to <http://edis.ifas.ufl.edu/HS290>

CITRUS PSYLLID



Foliar pesticides

When no new flush is present, psyllid populations do not continue to increase. During this time of no new flush, adult psyllids can be found feeding on the underside of leaves. The ability to survive for long periods in the absence of new flush allows psyllids to over-winter on mature leaves. If not controlled, these over-wintering psyllids will then lay eggs on new flush that will be present in the early spring.



Since during the winter months, temperature and flush pattern are not favorable for psyllid development, one of the best timing of foliar sprays for psyllid control is during the winter season when adult psyllids are less abundant.

Successful suppression of psyllids during the winter may result in lower populations throughout the rest of the year. Foliar insecticides that provide quick knockdown of psyllids should be used. When making multiple foliar insecticide applications within a season, rotation between products with different modes of action is recommended to avoid pesticide resistance.

Systemic pesticides

1. Nonbearing Trees. Young trees that produce multiple flushes throughout the year are at greater risk of greening infection than mature trees because of the attraction of adult psyllids to the new flush. Soil-applied systemic insecticides will provide the longest lasting control of psyllids with the least impacts on beneficials. Drenches are best applied once in the spring and again in the fall. Soil applications of imidacloprid should be made 2 weeks prior to the initiation of flushing to allow time for the pesticide to move from the roots to the canopy.

2. Bearing Trees. Management options for psyllid control on bearing trees are much more limited than for non-bearing trees. Currently, the only soil-applied insecticide that has been shown to provide any reduction in psyllid numbers on large trees is aldicarb. If aldicarb is applied to bearing trees as part of a program for psyllid management, application should be made at least 30 days prior to the initiation of flushing. This timing will allow for the material to move from the roots up to the tree canopy.

Recommended Chemical Controls for the psyllid

READ THE LABEL!!!

Some product labels specify rates per acre, while others specify rates per volume delivered (e.g. per 100 gallons). Refer to label for details on how product should be mixed for desired targets. Rates for pesticides are given as the maximum amount required to treat mature citrus trees unless otherwise noted. When treating smaller trees with commercial application equipment including handguns, mix the per acre rate for mature trees in 250 gallons of water. Calibrate and arrange nozzles to deliver thorough distribution and treat as many acres as this volume of spray allows.

For more details, check the **2007 Florida Citrus Pest Management Guide: Asian Citrus Psyllid and Citrus Leafminer** at <http://edis.ifas.ufl.edu/IN686>

Table 1. Recommended Chemical Controls for Asian Citrus Psyllids

Pesticide	Mature Trees Rate/Acre ²	Comments
Admire 2F	16 to 32 fl oz per grove acre OR 1/8 oz per tree (4-6' height)	Soil applied systemic intended primarily for use on young trees. Apply prior to or at onset of pest infestation for optimal results. See label for application options. Do not apply more than 32 oz/acre/year.
Provado 1.6F	10 to 20 fl oz per acre	Foliar-applied systemic
Danitol 2.4EC	1 pt	Restricted use pesticide. Highly toxic to bees.
Lorsban 4EC	5 pt	Restricted use pesticide. May increase spider mite populations.
Temik 15 G	33 lb	Restricted use pesticide. Notification of intent to apply is required. Application permitted only between Nov. 15 and Apr. 30. See label for application restrictions. When psyllid control is required, apply at least 30 days prior to anticipated flush.

²Lower rates may be used on smaller trees. Do not use less than the minimum label rate.

Questions and Answers: USDA's Revised Regulations for the Movement of Citrus Fruit from Quarantined Areas

Q. Why did the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) amend its regulations regarding the movement of fruit from areas quarantined for citrus canker?

A. On November 19, 2007, APHIS published a final rule in the *Federal Register* that eliminates the requirement for grove inspections and focuses solely on inspection and treatment of fruit at packinghouses prior to shipment as the means for ensuring that only disease-free fruit moves interstate. APHIS amended its regulations because citrus canker has become so widespread within Florida. Its spread has made it increasingly difficult for the State's citrus growers to meet the disease-free grove conditions previously required for interstate movement of citrus fruit under the August 1, 2006, interim rule.

Q. Does the final rule continue to prohibit the shipment of citrus fruit from Florida to other citrus-producing States and U.S. Territories?

A. Yes. The final rule continues to prohibit the entry of Florida citrus into American Samoa, Arizona, California, Guam, Hawaii, Louisiana, the Northern Marianas Islands, Puerto Rico, Texas, and the Virgin Islands. The interstate movement of fresh citrus fruit from Florida to the Nation's 45 noncitrus-producing States is allowed with a limited permit. APHIS will continue to examine scientific evidence concerning whether commercially packed citrus fruit is a significant pathway for the introduction and spread of citrus canker. If, in the future, evidence supports a determination that commercially packed citrus fruit is not a significant pathway, APHIS would pursue rulemaking to amend the regulations accordingly.

Q. How did APHIS determine that packinghouse inspections are sufficient to protect against the spread of citrus canker?

A. The final rule is based on a pest risk analysis (PRA) as well as a risk management analysis (RMA). The PRA concluded that the risk associated with the interstate movement of citrus fruit that is free of citrus canker lesions (referred to as asymptomatic fruit) is negligible. The RMA carefully examined field practices and procedures to determine which ones provide the most effective means of preventing the spread of citrus canker via the movement of commercial citrus fruit. The RMA concluded that packinghouse inspections combined with treatment achieve this goal.

Q. What is a pest risk analysis (PRA)?

A. A PRA is a scientific study that evaluates the likelihood of the entry, establishment, or spread of a pest or disease, and its potential consequences. PRAs serve as a basis for identifying potential pathways for the spread of harmful agricultural pests and diseases. The asymptomatic fruit PRA evaluated the potential for the spread of citrus canker through the movement of apparently healthy citrus. The PRA concluded that asymptomatic, commercially produced citrus fruit, treated with a disinfectant, and subject to other mitigations, poses a negligible risk for the introduction and spread of citrus canker.

Q. What is a risk management analysis (RMA)?

A. An RMA assesses available strategies and determines the optimal measures to effectively manage and mitigate pest risks. In this case, the RMA evaluated pest risks associated with the actual field practices and procedures used to produce, harvest, and pack fresh citrus fruit. Using the findings from the PRA, the RMA evaluated and identified the best risk management practices to achieve the goal of shipping only fresh fruit that is free of citrus canker lesions. Based on the findings of the RMA, APHIS determined that inspections of commercially packed fruit at the packinghouse will ensure that only asymptomatic fruit is readied for shipment, thus providing the

most effective safeguard to prevent the spread of citrus canker via the movement of fresh citrus fruit.

Q. Does the final rule place additional requirements on Florida citrus producers?

A. The final rule will ease the burden on citrus grove owners because it eliminates the grove certification requirement that was in place prior to the publication. Plant Protection and Quarantine November 2007 of this rule. The August 2006 interim rule previously required that fruit destined for noncitrus-producing States originate in groves inspected and found free of citrus canker no more than 30 days before the beginning of harvest.

Q. Are self-surveys of citrus groves recommended?

A. State and Federal surveyors are no longer inspecting Florida citrus groves to determine eligibility for interstate movement. Producers, however, will continue to benefit from conducting their own grove surveys on an on-going basis. APHIS encourages citrus growers to perform self-surveys in order to separate fruit that may have citrus canker from fruit free of lesions that qualifies for out-of-state shipment. Self surveys help growers ensure that their citrus will not be rejected at packinghouses during inspection. More importantly, it also helps growers assess management practices to reduce disease incidence in their grove.

Q. What does the final rule require of packinghouses?

A. As with the prior interim rule, packinghouses will continue to operate under compliance agreements and be responsible for treating each lot of fruit with an APHIS-approved surface disinfectant. Citrus canker inoculum, *Xanthomonas axonopodis pv citri*, does not normally survive more than 48 hours on the surface of uninfected fruit that has been removed from humid conditions and allowed to dry. APHIS requires the application of the surface disinfectant as an additional step to ensure that the citrus canker bacteria is devitalized or rendered incapable of causing infection. Packinghouses must also ensure that each lot of finished fruit is inspected and found free of visible symptoms of citrus canker prior to interstate movement.

Q. What does a compliance agreement require?

A. The compliance agreement requires that the owner or operator of a packinghouse treat fruit to be moved interstate with an approved treatment as specified in 7 CFR § 301.75-11. Additionally, the compliance agreement requires fruit to be packed only in boxes marked in accordance with the requirements in CFR § 301.75-7(a)(6). The compliance agreement also contains specific provisions pertaining but not limited to:

- Access to the facility and documentation by APHIS inspectors;
- Means by which lots are designated;
- Notice of estimated lot size and run times;
- Need for notice when APHIS inspectors are not present on a regular basis;
- Need for notice when there are significant changes in the amount of fruit being packed;
- Conditions (access to fruit, lighting, safety, etc.) that must be met in order for APHIS inspectors to carry out the required inspections;
- Provisions for handling and storage of fruit, including provisions that prohibit the movement of any part of a lot from a packinghouse until APHIS inspection is complete;
- Hazard-free access to decontamination areas so that APHIS inspectors can monitor the concentrations of chemicals used for fruit treatment;
- Provisions for holding fruit when packing is done at a time when an APHIS inspector is not present; and
- Hours of coverage for APHIS packinghouse inspections.

Any compliance agreement may be canceled orally or in writing by an inspector for noncompliance with the established requirements.

Q. What are the approved treatments for citrus moving interstate from Florida?

A. Treatments for moving citrus interstate are found in the Code of Federal Regulations, which you may access by going to <http://usasearch.gov/> and typing in (CFR) 301.75.11. They include solutions

containing either sodium hypochlorite or sodium o-phenyl phenate (SOPP). The final rule also calls for the use of peroxyacetic acid as a treatment for fruit and the disinfection of equipment, vehicles, and other articles. All approved treatments are applied at rates consistent with U.S. Environmental Protection Agency requirements and are known to be effective in deactivating the citrus canker bacteria, rendering it incapable of causing infection.

Q. What are the packing requirements for citrus moving interstate from Florida?

A. In order to be moved interstate, regulated fruit must be packaged in boxes or other containers approved by APHIS. The approved boxes or containers must be used exclusively for regulated fruit moving interstate and must be clearly marked with the following statement:

“Limited Permit: USDA-APHIS-PPQ. Not for distribution in AZ, CA, HI, LA, TX, American Samoa, Guam, Northern Mariana Islands, Puerto Rico, and Virgin Islands of the United States.”

Only fruit meeting all of the final rule’s requirements concerning interstate movement may be packed in boxes or containers marked with the above statement. Until August 1, 2008, APHIS is allowing fruit to be packed in bags if those bags are clearly marked with the distribution statement. The bags must then be packed in a box that is clearly marked with the limited permit statement and the distribution statement. APHIS has decided to temporarily allow this to occur because it is not practical to modify bags to include both the distribution statement and the limited permit statement. After August 1, all fruit intended for interstate movement will be required to be packed only in boxes or other containers that are clearly marked with both statements.

Q. Who will conduct the packinghouse inspections?

A. APHIS inspectors will carry out inspections at the packinghouse level.

Q. What kind of sampling is required for each lot of citrus?

A. The final rule calls for a level of sampling that will allow inspectors to detect, with a 95 percent confidence level, that the incidence of citrus canker in the shipment is less than .38 percent. The rule allows for fruit to be randomly inspected either prior to or after packing. If the fruit is inspected prior to packing, the level of sampling required equates to approximately 1,000 pieces of fruit per lot. However, it is anticipated that most fruit will be inspected after it is already boxed. If the fruit is inspected after packing, the number of boxes sampled will depend on the amount of fruit that is contained in each box. This sampling formula will lead to a slightly higher amount of fruit being inspected, but it is necessary in order to obtain an accurate statistical sample.

Q. Under the final rule, what constitutes a “lot”?

A. In the CFR § 301.75-1, a lot is defined as “fruit of a single variety that has passed through the entire packing process in a single continuous run not to exceed a single work day” (i.e., a run started one day and completed the next is considered two lots).

Q. What if an APHIS inspector finds citrus canker on fruit during a packinghouse inspection?

A. The same procedures previously in force still apply. After an APHIS inspector—based upon visual inspection—makes a preliminary diagnosis, packinghouse representatives have several options concerning the fruit. They may elect either to divert the fruit for processing as juice, for sale intrastate as fresh fruit, or they may hold the shipment and await confirmation of citrus canker by an APHIS plant pathologist. Based upon their review of digital images forwarded by inspectors in the field, APHIS plant pathologists provide disease confirmation. If photos are inconclusive, a pathologist will be dispatched to the packinghouse. If suspect lesions are not confirmed, the shipment is released and allowed to move interstate.

Q. Will reconditioned fruit be eligible for interstate movement?

A. No. APHIS will not allow the reconditioning of rejected fruit lots under this final rule. Reconditioning is the re-running and re-grading of a fruit lot found to be infected. When reconditioned, infected pieces of fruit are removed and the lot is resubmitted for inspection. If APHIS were to allow previously rejected fruit lots to be reconditioned and resubmitted for inspection, the incentive for growers to present fruit that is free of visible signs of citrus canker for

inspection would substantially diminish. Additionally, if reconditioned lots were allowed to undergo multiple surface disinfectant treatments, the treatment residue might exceed EPA tolerances.

Q. Will APHIS make an exception in the final rule and allow tangerines to be shipped to citrus-producing States?

A. No. Under the final rule, tangerines, or *Citrus reticulata*, are included in the quarantine. *Citrus reticulata*, or mandarin, is a group name for a species of citrus with a thin, loose peel. Although some people consider tangerines to be resistant to citrus canker, the disease has been detected on the fruit numerous times. During the 2005-2006 growing season grove surveys, citrus canker was detected on 274 samples from tangerine, tangor, and tangelo groves. In addition, APHIS pest interception data between 1985 and 2006 shows that citrus canker was intercepted 632 times on tangerine varieties.

Q. Can other citrus-producing nations with citrus canker ship to the United States under the same conditions in this rule?

A. Other citrus-producing countries with citrus canker are not eligible to ship citrus fruit to the United States under the same requirements due to the presence of other exotics pests of concern. The final rule is a domestic regulation that applies only to Florida citrus.

Q. Does the final rule apply to Florida citrus shipped within the State or destined for other countries?

A. No. Fruit shipped within Florida does not require sampling and inspection as described in the final rule. Florida citrus exported to other international markets must meet all import requirements of the destination country. For example, the European Union requires that fruit originate in groves inspected and found free of citrus canker prior to harvest.

Q. Can homeowners ship backyard citrus interstate?

A. Under the final rule, homeowners have the same opportunity to ship citrus interstate as commercial producers. Homeowners need to meet the same requirements as producers, including having their citrus treated, packed, and inspected at a packinghouse that has entered a compliance agreement with APHIS. The citrus must be shipped in an appropriately marked box.

Q. Does the new citrus greening Federal Order affect this rule?

A. No. APHIS is currently evaluating research to determine whether seed contained in fruit may serve as a pathway for the transmission of citrus greening and, if so, what restrictions may be appropriate for the movement of fruit from citrus greening quarantined areas. Any regulatory action needed in response to this new evidence would be taken quickly and in a separate action from this rulemaking.

Q. Where can I find additional information on citrus canker?

A. For more information on citrus canker, please go to www.aphis.usda.gov and click on the citrus canker hot issues link.

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By [SUSAN SALISBURY](#)

Palm Beach Post Staff Writer

CLEWISTON — In a citrus grove so peaceful and remote that a group of five deer has just been spotted, Mary Weston is working to identify a killer disease.

After a close-up look at an orange tree's mottled leaves and yellow veins, she knows she's seeing once again the telltale signs of greening disease. Weston quickly sprays its trunk with blue paint, marking the tree for destruction.

Mary Weston, who has worked at Southern Gardens Citrus for 25 years, tags a tree infected with greening by spray painting it blue. Weston, a senior scout, is called in to check on trees marked by scouts to make sure they are in fact infected with greening.

A bulldozer dumps orange trees infected with the citrus greening disease onto a burning pile at a Southern Garden Citrus' grove. The infected trees are located by scouts, confirmed by a senior scout and marked, then removed, and then burned in a large pile in hopes of not spreading the disease.

'THEY NEVER LACK FOR ANYTHING': Pete Spyke, president of Arapaho Citrus Management, cultivates a 6-acre demonstration grove west of Fort Pierce that aims to beat greening by using an open-hydroponics system, which delivers a constant supply of water and nutrients to the trees through drip irrigation.

"We look for greening every day," said Weston, 49, a senior scout at Southern Gardens Citrus, west of Clewiston in Hendry County.

Her experienced eye confirms the finds initially spotted by other scouts. She notes the location - "J block, Zone 57" - and enters it in a computer kept in the "mule," the golf cart-type vehicle she drives.

Greening, also known by its Chinese name of *Huanglongbing*, or yellow dragon disease, is one of the most feared maladies in the citrus world.

Believed to be native to China, the disease first was confirmed in the United States in August 2005, when it was found in Miami-Dade County.

By October of that year, it had been found in a grove of Southern Gardens, Florida's third-largest citrus grower, which last season processed 115 million gallons of orange juice.

Since then, the company's grove-care costs have risen 35 percent to 40 percent, mostly because of greening surveys, tree removal and chemicals used to control the Asian citrus psyllid, the exotic insect that spreads the disease, said Ricke Kress, president of Southern Gardens.

Weston is one of 43 people walking in Southern Gardens Citrus' three groves, searching for the bacterial disease, which causes trees to produce small, misshapen fruit and eventually become unproductive. The trees will be taken out and burned.

An additional group of four scouts searches for nothing but the psyllid.

Their job is to check each tree four times a year.

That's no easy task, with 16,500 acres of 2.3 million orange trees spread out over a 10-by-30-mile area in southern Hendry County. Each scout covers 6 to 15 acres a day.

Southern Gardens instituted its plan immediately after the disease was found in its grove, even though little was known in this country about greening. The company moved forward based on what was known about the disease in Brazil, China and other countries.

"We couldn't wait for the research to be done," said Kress, 56. "We made the decision we were going to be proactive and learn at the same time."

Finding and removing the infected trees is an expensive and serious business, said Jim Snively, the company's vice president for grove operations.

In the past two years, approximately 180,000 of Southern Gardens' trees - about 4 percent - have been removed because of greening.

"The big challenge is finding positive trees and getting them removed in a timely fashion," Snively said. Standing in the grove, Snively, 44, cuts an orange to check for aborted seeds, which he finds right away. Shrunken and brown, the seeds sit inside a lopsided, unhealthy fruit.

"This tree is collapsing and going downhill because of greening," Snively said, indicating its mottled leaves and yellowed veins. "It has dropped a lot of leaves. These are classic symptoms."

'Eradicate the psyllid'

Snively said the company's spray-program costs have risen to \$254 an acre, or \$4.2 million a year, from \$80 an acre a few years ago, with most of the increase attributable to greening.

The psyllid is a "flying hypodermic needle" that injects the greening bacterium into trees one at a time, Snively said, and that's why he favors eliminating the bug to get rid of the disease.

"Some people think we need a greening-resistant tree. I say eradicate the psyllid," he said. "We can't have greening without the psyllid that spreads it.

"We can never control the psyllid with chemical controls. It will require some sort of biological control, such as a disruption in the way they reproduce."

Some \$8 million in greening and citrus canker research, amounting to more than 80 state and federal projects, is under way.

Harold Browning, director of the University of Florida's Citrus Research and Education Center in Lake Alfred, said many of the projects are new efforts and just now are getting started.

"We have not experienced any breakthroughs that allow us to discuss solutions at this point," Browning said.

Pasco Avery, a UF microbiologist and entomologist based in Fort Pierce, is part of a team looking into a fungus that kills psyllids. He envisions surrounding the groves with some sort of barrier to stop the bugs in their tracks.

"From an ecological standpoint, it makes a lot of sense," Avery said. "We have to try and bring back the psyllid's natural enemies."

Beginning today, the U.S. Department of Agriculture's Animal and Plant Health Inspection Service will hold a two-day summit in Bethesda, Md., to discuss citrus greening. Florida citrus industry representatives, state and federal officials, and researchers from Texas and California are expected to attend the meeting, which will be closed to the media.

Abandoned groves a big issue

While growers await a better solution, they continue to spray pesticides to control the psyllids and remove infected trees. But their efforts are thwarted by neglected and abandoned groves.

One such grove is across County Road 835 from Southern Gardens.

"They are not removing trees. They aren't treating for psyllids. The (disease) is sitting there," Snively said, gazing at the offending grove.

Unlike with canker-infected trees, which the government removed from homeowners' properties and commercial groves during an unsuccessful 11-year eradication program that ended last year, there's no requirement that greening-infected trees be removed.

Doug Bournique, executive vice president of the Indian River Citrus League in Vero Beach, said an industry committee working with the Florida Department of Agriculture's Division of Plant Industry is discussing the legal and political options for dealing with abandoned groves.

"It's a big issue," Bournique said. "There are growers who have kept groves barely alive."

The problem is worse in Martin, St. Lucie and Indian River counties, where developers, as well as the South Florida Water Management District, have purchased groves but have done nothing with them, he said.

"Greening is starting to show up at an accelerated rate," Bournique said.

Kress, Snively, Bournique and others agree that industry representatives must work together to control greening.

"It will require a regional effort," Bournique said.



Flower Bud Induction

<http://www.lal.ufl.edu/extension/flowerbud/index.htm>

If you have further questions, please contact albrigo@ufl.edu

'Plan ahead' it is time to think about flower induction enhancing sprays (urea or phosphorous acid (PO₃)). These sprays will be most useful if a warm period is predicted from near to shortly after Christmas and the total hours < 68 degrees F has not reached 800 hours if you have a moderate to low crop and 900-1000 hours if you have a heavy crop. These conditions would most likely exist in the southern citrus growing areas. If you are anticipating spraying one of these products, be sure you have material on hand. For urea, you need 53 to 60 lbs of urea available per acre you plan to treat. For a PO₃ product you need 3 pints to 2 quarts per acre depending on which product you use. If a warm period occurs, it may be advisable to spray trees with a good to heavy crop no later than 3 to 4 days into the warm period.

UREA

Urea is a white crystalline substance with the chemical formula CO(NH₂)₂. It is highly water-soluble and contains 46% nitrogen (N). Urea is considered an organic compound because it contains carbon.

Advantage of urea for foliar application of N

Urea is the best source of nitrogen for aerial application. Use of urea compared to other nitrogen fertilizers offers several advantages. Urea is taken up rapidly by plants. Research has shown that up to 50% of the urea can be taken up within 30 minutes. Second, there is reduced foliar burn due to salt injury because the nitrogen is organic rather than a fertilizer salt.

Guidelines for foliar applications of urea

Urea uptake is increased under mildly acidic conditions so the pH of the solution should be buffered to about 5.5 to 6.5 for maximum uptake. When the pH of the solution exceeds 7, the possibility of free ammonia exists, and the potential for leaf burn increases dramatically. Low-biuret urea solution specifically manufactured for foliar application can be buffered to eliminate free ammonia and a special dye can be added to act as a visual indicator of the solution pH. For citrus, the quantity of nitrogen applied at one time should not exceed 28 lbs (60 lbs of urea) per acre. ***Winter application (6 to 8 weeks before bloom) of low biuret urea at 10-15 gal (18-28 lbs N) per acre can increase flowering and fruit set.***

Application time should be just as the warm period is starting, when daytime highs are in the 70-80 degree range, and may continue for up to a week. Sprayed trees will often bloom up to a week earlier than unsprayed controls.

SHIPPING DOORYARD FRUIT OUT OF FLORIDA

The US Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) has quarantined the entire State of Florida for citrus canker, a serious bacterial disease not found in any other citrus-producing areas of the United States or its territories. Scientific studies have shown that fruit that shows no visible signs of citrus canker infection that is commercially packed poses a minimal risk of spreading citrus canker. Based on these studies, USDA has determined that fresh citrus fruit can be shipped out of the citrus canker quarantine area to non-citrus producing states if it is commercially packed, regardless of whether it is produced in a commercial grove or grown in a homeowner's back yard. During the commercial packing process, fruit is generally washed, disinfected, graded and inspected by government inspectors. As part of the commercial packing process, it is also packed into specially marked shipped containers and issued a "Limited Permit" for shipment to non-citrus producing states. **It is important to note that under the citrus canker quarantine, fresh citrus cannot be shipped to any citrus producing state or territory, including AZ, CA, HI, LA, TX, Puerto Rico, the US Virgin Islands, Guam and the Northern Mariana Islands.**

The Florida Citrus Packers Association has provided USDA with the following list of packinghouses that have indicated they will pack citrus fruit grown by homeowners. This list is not all-inclusive and there may be additional packinghouses that will pack fruit for homeowners. You are urged to contact local packinghouses in your area to see if they can assist you.

Packinghouses for Homeowner Fruit

Source: Florida Citrus Packers Association (Phone: 941-682-0151)

Ridge Island Groves
6000 Old Polk City Rd
Haines City FL 33844
Phone: 863.422.0333
Contact Person: Archie Ritch

Boyett's Grove
4355 Springlake Hwy
Brooksville FL 34601
Phone: 352.796.2289
Contact Person: Kathy

Red Hill Groves
3725 Conway Rd.
Orlando FL 32812
Phone: 407.277.3862
Contact Person: Ed White or Ted White

Neukom Groves, Inc.
5409 Gall Blvd
Zephyrhills, Florida 33542-3929
Ph 813-782-5596
Fax 813-788-2048

Poinsettia Groves
1481 U.S. Hwy 1
Vero Beach FL 32960
Phone: 772.562.3356
Contact Person: Jeb Hudson

The Orange Shop
PO Box 125
Citra, Florida 32113-0125
Ph. 1.800.672.6439
info@floridaorangeshop.com

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