



UNIVERSITY OF  
FLORIDA

IFAS EXTENSION

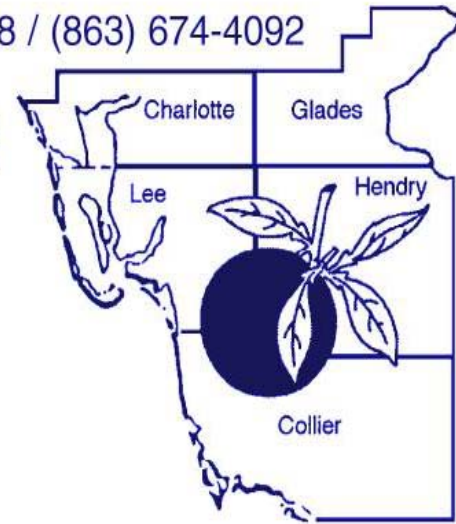
Hendry County Extension / P.O. Box 68 / LaBelle, Florida 33875-0068 / (863) 674-4092

# Flatwoods Citrus

Vol. 10, No. 2

February 2007

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



## U P C O M I N G      E V E N T S

### EXOTIC CITRUS DISEASES NOT HERE YET IN FLORIDA

**Citrus variegated Chlorosis (CVC)**

**Leprosis**

**Stem Pitting Tristeza**

**Black spot**

Speakers: **Drs. Ron Brlansky, Carl Childers, and Pam Roberts**

Date & time: February 20, 2007, 10 AM- 12:00 Noon

Location: Immokalee IFAS Center.

2 CEUs for Pesticide License Renewal

2 CEUs for Certified Crop Advisors

Sponsor: **Ed Early, DuPont Ag. Products**

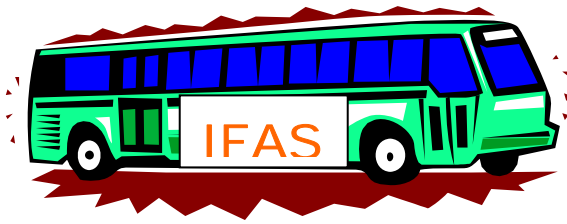
Free lunch will be served (Compliments of **DuPont Ag. Products**).

However, **RSVP is required**. To RSVP, call carol at 863 674 4092 no later than Friday, 16 February 2007 or send an e-mail to [maz@ifas.ufl.edu](mailto:maz@ifas.ufl.edu) **No RSVP = no Lunch.**

**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**

# COLLIER COUNTY EXTENSION AG TOUR

Date: Wednesday, 21 March 2007



For more information or to sign up,  
Contact Robert Halman

Phone: 239 353 4244

[rdhalman@ifas.ufl.edu](mailto:rdhalman@ifas.ufl.edu)

Mark your Calendar for these important events

## MECHANICAL HARVESTING WORKSHOP AND FIELD DAY

Date: April 18, 2007

Location: Immokalee IFAS Center



## FARM SAFETY DAY

Saturday, June 2, 2007, Immokalee IFAS Center

Coordinator: Mongi Zekri

120<sup>th</sup> Annual Meeting of the  
Florida State Horticultural Society

<http://www.fshs.org/>

Date: June 3-5, 2007

Location: PGA National Resort & Spa, Palm Beach Gardens [www.pgaresort.com](http://www.pgaresort.com)

**Abstract Submission Deadline: March 10, 2007**

2006-2007 FSHS Citrus Vice President: Mongi Zekri: [maz@ifas.ufl.edu](mailto:maz@ifas.ufl.edu)



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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3605 162<sup>nd</sup> Ave East  
Parrish, FL 34219

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Ag Net: 158\*17\*9485

# FERTILIZER CONSIDERATIONS

Fertilizers have many different formulations, analyses and grades available for purchase. Among the many choices, formulation of the liquid or granular fertilizer is one of the most important. How do you decide which is the right product for your needs?

A fluid fertilizer is formulated and packaged as a liquid. This includes fertilizers that are clear liquids (solutions) or liquids that contain suspended solids (suspension fertilizers). Growers and production managers frequently use more solids (granules) than fluid fertilizers.



Solid fertilizers are dry particles that manufacturers size between an upper and lower limit of screen sizes. They may be finely crushed, granulated, crystallized, powdered or processed into uniform prills. These fertilizers usually are water-soluble for quick release and uptake, but sometimes are coated as controlled-release products.

Water-soluble fertilizers are readily available for crop use. Examples of common water-soluble products include ammonium nitrate (34-0-0) and urea (45-0-0). Some water-soluble fertilizers are homogeneous products (every particle has the same composition). These homogeneous products have a uniform appearance and are made from blends of

raw fertilizer materials such as superphosphate, urea, and potassium chloride. Fertilizer bags always list which raw materials the manufacturer used in the fertilizer bag.

Other solid fertilizers are non-homogeneous blends (you can see the individual granules of different fertilizer materials), where the manufacturer simply has mixed particles together to produce a desired overall composition. Non-homogeneous products may not spread as uniformly as homogeneous products, especially if the particles are different in size and in weight.

Water-soluble fertilizers produce a rapid response, have a low cost per unit of nutrient, are easy to apply, and do not take expensive equipment or intensive training to ensure correct application.

Foliar feeding uses a small amount of fertilizer sprayed directly to the foliage, providing rapid uptake of nutrients and quick correction of a nutrient deficiency. Typically, applicators use foliar feeding to satisfy micronutrient requirements or supply a small amount of a deficient nutrient or as part of a fertilizer program or a pesticide application. Nitrogen-phosphorous-potassium mixes are sometimes used.



Benefits from using soluble solids as liquid fertilizers include the ability to apply nutrients through irrigation (fertigation), possible use as a carrier for post-emergence herbicides and flexibility of application as a foliar feed. Liquid application of a soluble-solid fertilizer through fertigation can reduce the risk of foliar burn, provide even coverage and allow simultaneous application of water and fertilizers.

Liquid fertilizers can be applied at low rates on a frequent basis to spoon-feed the crop, promoting consistent and uniform growth. Application of small amounts of fertilizer on a regular basis can increase fertilizer efficiency and reduce environmental risk. Disadvantages of liquid fertilizer may include the extra cost of new application equipment and the issues of handling a heavy, bulky, liquid material.



New technologies have led to the development of resin or polymer-coated fertilizers. Nutrient-release rates depend on factors such as moisture and temperature (depending on the product) and vary with the composition and the thickness of the coating. These fertilizers tend to be uniform in granule size and provide controlled release nutrients.

They are an excellent choice in high-value crops or when frequent application of soluble N is not an easy and a cheap option.

On the positive side, use of controlled release fertilizers creates a long-term, consistent growth. Because of the low application frequency, labor cost is low. These products also have a low burn potential. On the negative side, they do not tend to provide a rapid response, and their cost per unit of nutrient is much higher than that of soluble sources.

All fertilizers have both advantages and disadvantages. The appropriate type for each operation depends on several factors. Consider the following in making your choice of fluid or solid fertilizers. Do you have the labor and/or the equipment to make the frequent applications that soluble liquid or solid products require? Consider controlled release products for some blocks. Do you need a quick fix of a visual manganese, zinc, boron, copper, or magnesium deficiency? Foliar liquid application may be the best solution.

Think about the environment. Controlled release fertilizers and properly timed, frequent applications of soluble fertilizer sources can help protect the water supplies and the environment, especially in areas prone to heavy rains near environmentally sensitive areas. Test your crop and soil to determine what nutrients you need to apply and which application methods you need to use.

# NUTRITION OF CITRUS TREES

Fertilizer management should include calibration and adjustment of fertilizer spreaders, booms, pumps, or irrigation systems to accurately deliver fertilizer rates and place fertilizers within the tree rootzone. To increase fertilizer efficiency, soil and leaf analysis data should be studied and taken into consideration when generating a fertilizer program and selecting a fertilizer formulation. Dry fertilizer application should be split into 3 to 4 applications per year with a complete balanced fertilizer. For mature trees, the highest nutrient requirement extends from late winter through early summer. This coincides with flowering, heavy spring flush, fruit set, and fruit development and expansion. For best fresh fruit quality, nutritional requirements, particularly nitrogen (N), should decrease late in the summer and fall. Based on tree demands, 2/3 to 3/4 of the yearly fertilizer amount should be applied between February and June. In warm areas such as southwest Florida where tree growth can continue certain years during the winter, fertilizer applications should also be made in the fall to satisfy vegetative growth demand. However, fall fertilizer applications may sometimes delay fruit color development and fruit maturity for early and mid-season cultivars.

## IFAS fertilizer guidelines for nonbearing citrus trees

Year in grove	Lb N/tree/year (range)	Lbs Fertilizer/tree/year (range)		Lower limit of application frequency	
		6-6-6	8-8-8	Dry	Fertigation
1	0.15 – 0.30	2.5-5.0	1.9-3.8	6	10
2	0.30 – 0.60	5.0-10.0	3.8-7.5	5	10
3	0.45 – 0.90	7.5-15.0	5.6-11.3	4	10

## IFAS fertilizer guidelines for bearing citrus trees (4 years and older)

Oranges	Grapefruit	Other varieties	Lower limit of application frequency	
Lbs N/acre/year (range)			Dry	Fertigation
120 - 200	120 - 160	120 - 200	3	10



Rates up to 240 lbs/acre may be considered for orange groves producing over 700 boxes/acre and up to 180 lbs/acre for grapefruit groves producing over 800 boxes/acre. Young trees planted on previously uncropped soils should receive fertilizer containing the following ratio of elements: nitrogen-1, phosphorus-1, potassium-1, magnesium-1/5, manganese-1/20, copper-1/40, and boron-1/300.

## Postbloom fruit drop (PFD) fungal

disease is more of a problem on Navels and Valencias.

The fungus attacks flowers and causes the fruitlets to drop leaving persistent calices or buttons. Once the bloom begins, groves with a history of PFD or with buttons from previous years should be inspected twice weekly. Topsin (2 lb/acre) is very effective in controlling the disease. A model has been



developed and is being improved to assist growers and production managers to determine the need and timing of fungicide applications.

**For more information, call the toll-free hotline sponsored by Syngenta Crop Protection (1-866-365-3017) for the latest reports on the disease. Dr. "Pete"**

**Timmer**, Extension Plant Pathologist at the University of Florida/IFAS Citrus Research and Education Center, will provide current information on recent outbreaks, the status of the bloom and other relevant news. Information on PFD and other foliar fungal diseases is available on Timmer's citrus pathology website

(<http://www.crec.ifas.ufl.edu/timmer/>), Remember that it is advisable to remove weak and declining trees and put resets to maintain good yield per acre.

Furthermore, the off-season bloom from declining trees within a block can provide a site for fungal spore buildup and can be a major contributor to PFD.

**This coming season, EPA most likely will grant Florida section 18 for Topsin (Cerexagri, Inc.) fungicide on citrus.** Citrus growers must have the EPA

exemption letter or Cerexagri's Sec. 18 Use Directions in their possession at the time of application.

## Fungicide effectiveness ([By Dr. Timmer](#))

	<u>Greasy Spot</u>	<u>Alternaria</u>	<u>Scab</u>	<u>Melanose</u>	<u>PFD</u>
<b>Copper</b>	Excellent	Good	Moderate	Excellent	Poor
<b>Topsin</b>	?	None	Excellent	?	Good
<b>Ferbam</b>	Weak	Moderate	Good	Weak	Moderate
<b>Enable</b>	Excellent	Poor	Good	Weak	?
<b>Abound</b>	Good	Very good	Excellent	Moderate	Moderate
<b>Gem</b>	Good	Good	Excellent	Moderate	Moderate
<b>Headline</b>	Good	Very good	Excellent	Moderate	Moderate
<b>Trilogy</b>	Weak	Moderate	None	None	None



# CITRUS LEPROSIS

Leprosis is one of the most important citrus diseases in Brazil. This problem is caused by the *Citrus leprosis* virus and is transmitted by mites of *Brevipalpus* spp. It also occurs in other South American countries and has been recently identified in Central America. This northbound spread of leprosis is being considered a serious threat to the Florida citrus industry.

Prior to 1925, leprosis had a negative impact on citrus production in Florida. Then about 1926, the incidence of leprosis in Florida drastically declined, with the decline coinciding with the introduction of sulfur as an effective miticide for controlling citrus rust mite. The last time leprosis was reported in Florida was in the mid-1960s.

This disease alone is responsible for approximately \$60 to 100 million per year losses in Brazil. It is quite difficult to work with the citrus leprosis virus, which has hindered much of the progress regarding its accurate detection. Symptoms require field experience and can be confused with those caused by other plant pathogens. On the other hand, laboratory analysis of lesions is time-consuming, requires experience, and is not always very accurate, leading to some false negatives.



Leprosis produces symptoms on leaves, branches and fruit. It causes lesions in the fruit skin, premature drop of leaves and fruits, and twigs dieback, with the possible death of

the tree. The damage to the branches can decrease the plant productivity after some years because the damaged branches prevent the normal flow of plant sap. With effective mite control, it might take two years for a citrus tree with leprosis to fully recover. Citrus leprosis infects all varieties of sweet orange, and has been reported on lemon and mandarin. Tangerines and tangor are also susceptible to the disease. Grapefruit is reported to be tolerant.



Dissemination of the disease occurs only when infected citrus trees and vectors are present. In citrus, the population of the leprosis mite is low and usually occurs in clusters of trees, which should be monitored carefully. When the trees are contaminated with the leprosis virus, the number of diseased trees will increase as the contaminated mites disperse.

Leprosis control is based mainly on the elimination of the sources of inoculum by pruning the affected trees and by using miticides to reduce the vector. Additional control procedures are also recommended, such as:

- Planting of young trees free from leprosis mites and from leprosis virus
- Controlling the leprosis mites host weeds
- Disinfection of equipment, boxes and vehicles
- Use of mite non-host species as windbreak
- Developing and using procedures that favor the increase of the population of natural enemies of the leprosis mite.

## CITRUS VARIEGATED CHLOROSIS (CVC)

CVC was first detected in Brazil in 1987. There are reports of presence of CVC in Paraguay, Argentina and Costa Rica as well. The symptoms of CVC usually begin with a zinc deficiency-like chlorosis appearing on one sector of the tree.



The leaves develop a gummy lesion on their lower side with a corresponding yellow chlorosis appearing on the upper surface.



As the disease progresses, the new leaves are small and tend to point upward, twig dieback occurs, the fruit size is greatly reduced, and the fruit has a hard rind.

Once infected with CVC, tree growth is drastically reduced and trees become non-productive in three years. Younger trees are more susceptible to CVC than trees which are ten years of age or older. Symptom expression and incidence of CVC appear to be greater in warmer climates. All sweet orange varieties are susceptible to CVC. Lemons, limes, mandarins, mandarin hybrids such as Murcott and Sunburst, kumquats, and grapefruit usually do not show symptoms of CVC but allow some multiplication of the bacterium.

The CVC bacterium, which blocks the vessels of the xylem of the tree, is transmitted by

several species of sharpshooters. The efficiency varies among species. The sharpshooter loses the ability to transmit *Xylella fastidiosa* whenever a molt occurs. Once an adult acquires *X. fastidiosa*, they retain the ability to transmit for life. The glassy winged sharpshooter, *Homoladisca coagulata*, present in the Florida and California has been shown to be capable of transmitting CVC.



Diagnosis of CVC in the field can be confused with other decline diseases of citrus. CVC infected trees will take up water by the syringe injection test while blight infected trees do not. Diagnostic field symptoms are the small fruit, the gummy lesion on the underside of the leaves, and the small, pointy leaves at the top of the tree.

For areas without CVC, exclusion is the best control. Use of citrus budwood certification programs is helpful. Management of CVC in Brazil is by propagation of disease-free planting material from protected nurseries (**screenhouses**), use of insecticides to control sharpshooters, and pruning of branches at an early stage of the disease or eradication of trees with advanced symptoms. Genetic engineering approaches are being used to develop resistance to CVC in sweet orange.



## Black Spot

Citrus black spot is one of the most important fungal diseases of citrus. The symptoms are necrotic lesions on fruit that make them unacceptable for fresh market. When disease is severe, black spot may cause extensive premature fruit drop that reduces yields. Citrus black spot has been a significant production problem in a number of countries in Southeast Asia, Africa, South America, and in Australia. Although citrus black spot has not been reported in the U. S., climatic conditions in Florida are likely favorable for the occurrence and establishment of black spot disease. Citrus cultivars grown in Florida are also vulnerable to damage by black spot. Lemons, grapefruits, limes, and mandarins are especially susceptible and late maturing varieties, such as Valencias, can suffer severe yield losses due to premature fruit drop. Sour orange and Tahiti lime are not susceptible.



Black spot causes cosmetic lesions on the rind of fruit that are the most conspicuous symptom of infection. Fruit symptoms can be quite variable. Black spot lesions begin as small orange or red spots with black margins and enlarge to become necrotic lesions. Green tissue may surround the black lesions.

Infection of citrus black spot is favored by warm wet conditions in the summer, presence of susceptible fruit, and presence of abundant inoculum. The primary source of infection is ascospores (sexual spores)

produced on dead leaves on the ground. Ascospores are forcibly ejected during rains or irrigation onto fruit and infection occurs mostly in late spring and summer. Fruit are susceptible for 4-5 months after petal fall. Although infection occurs when fruit are young, the fungus undergoes a long period of latency and symptoms may not appear until the fruit become mature. Citrus black spot is an exotic disease to Florida. It is important to keep it out of the state, and if introduced, to quickly detect any infections before they become established. In countries where citrus black spot is endemic, fungicides are required to control the disease. Protective treatments using copper or strobilurin fungicides or mancozeb must be properly timed, and up to 5 sprays may be required during the period of susceptibility. Removal of dead leaves in groves reduces inoculum potential and is an effective practice. Long distance spread of citrus black spot occurs via infected nursery stock, and steps to avoid movement of infected trees help limit spread of the disease to new areas. Little effort has been made toward developing varieties with tolerance or resistance to citrus black spot.



**This is a summary of “Citrus Diseases Exotic to Florida: Black Spot”**

<http://edis.ifas.ufl.edu/PP135>

**By Drs. Chung, Peres and Timmer, UF-IFAS Lake Alfred Citrus Research & Education Center**

## Citrus Tristeza Virus- Stem Pitting (CTV-SP)

Florida growers are familiar with the *Citrus tristeza virus* (CTV)-induced decline of trees on sour orange and bitter-sweet rootstocks, a disease that is destroying the remaining trees on susceptible rootstocks in Florida. Growers are less familiar with the stem pitting disease caused by certain CTV isolates. Unlike decline, CTV-SP is not a bud union disorder, and can affect sensitive scion varieties regardless of the rootstock used. CTV-SP is a debilitating disease on grapefruit and sweet orange, and may take years after infection before trees show obvious loss of vigor and yield. However, once infected the effect is continuous and long-term economic effects to the grower may be worse than those from other CTV declines. Trees if lost to decline can be replaced by trees on tolerant rootstocks and production is restored in a few years. Currently, there are no CTV-SP tolerant grapefruit and sweet orange. Once CTV-SP is endemic in an area, replants will soon become infected and the debilitation cycle is repeated. Isolates that induce CTV-SP in grapefruit and sweet orange are relatively rare in Florida. However, there is clearly a potential for the introduction and natural spread of CTV-SP in Florida.

Limes, grapefruit, and Alemow (*Citrus macrophylla*) are highly susceptible to CTV-SP. Sweet oranges and rough lemon are tolerant to many CTV isolates, but show strong stem pitting when infected by CTV-SP. Mandarins are considered tolerant, but may show stem pitting under some conditions. Trifoliate orange and trifoliate hybrids carrying the CTV-resistance gene are resistant to CTV infection and CTV-SP, but hybrids without this gene may show strong pitting.

The severity of CTV-SP in a specific host can vary markedly. Sometimes only a few scattered pits can be seen after removing the bark from affected plants and there is no detectable effect on plant vigor. Other isolates may cause extensive pits in the trunk and branches that can

often be detected as depressed areas in the bark. When severe, the trunk and branches may have a ropy appearance. Trees may continue to grow fairly vigorously for extended periods with this type of pitting, but fruit size may be reduced.



As with decline isolates, CTV-SP isolates can be transmitted by budding and grafting. Long distance movement of CTV-SP to different countries or different areas within a region is usually via the movement of infected budwood or nursery stock. CTV-SP is also transmitted by several species of aphids. The brown citrus aphid is considered the most efficient vector. CTV-SP can be readily identified by looking for pits in the trunk and branches in the field. The first lines of defense in areas where CTV-SP is not yet widespread are quarantine and clean budwood. Often the only practical option is to avoid growing cultivars sensitive to CTV stem pitting. Aphid control may be useful in nurseries, but is not regarded as a practical long-term strategy for commercial plantings. Control of CTV-SP is difficult if inoculum sources are widespread and the aphid vectors are well established. Preventing CTV-SP from entering Florida is much easier than trying to eradicate or control it. It is important to avoid bringing propagation materials from CTV-SP-infected areas to Florida. Any citrus propagating materials must be introduced by proper procedures through the Florida Department of Agriculture and Consumer Services, Division of Plant Industry.

This is a summary of "Citrus Diseases Exotic to Florida: Citrus Tristeza Virus- Stem Pitting (CTV-SP)"

<http://edis.ifas.ufl.edu/PP149>

By Drs. Chung and Brlansky, UF-IFAS Lake Alfred Citrus Research & Education Center

# CITRUS GREENING

## Sample Documentation

1. No sample will be accepted without a properly filled out sample submission form!

2. No samples will be accepted or processed without the submission of a properly executed Disclaimer and Hold Harmless Agreement. Only one Disclaimer and Hold Harmless Agreement needs to be submitted for each organization/grove/nursery that is submitting samples (i.e. once the Disclaimer is on file, an unlimited number of samples can be submitted under the agreement for that organization).

Either include the Disclaimer in with the first set of samples or send it to:

**Mike Ire**  
**United States Sugar Corporation**  
**Technical Operations**  
**111 Ponce de Leon Ave.**  
**Clewiston, FL 33440**  
[msirey@ussugar.com](mailto:msirey@ussugar.com)  
863-902-2249

3. Enough information must be provided in the “address where specimen was collected” and the “block/nursery designation” portions of the form to enable a state inspector to locate the row and tree or nursery block that was tested should subsequent testing by official sources be required.

4. Although not a requirement, we would like to have sample locations documented by GPS coordinates.

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## Sampling Protocol for Submission of Samples to the Southern Gardens Diagnostic Laboratory

### Collection of Samples

#### Time of Year

1. If possible, samples should be collected from **September through March** although samples will be accepted throughout the year. *Samples collected during non-optimal times of the year may not give an accurate representation of the disease status of the trees sampled.*

2. Avoid collecting samples during leaf flushes (stop when feather flushes are approximately 2-3 in long, resume sampling when leaves from the most recent flush are fully expanded and beginning to harden off).

#### Symptomatic Field Trees

1. Samples should be collected from the symptomatic areas/branches of the trees.

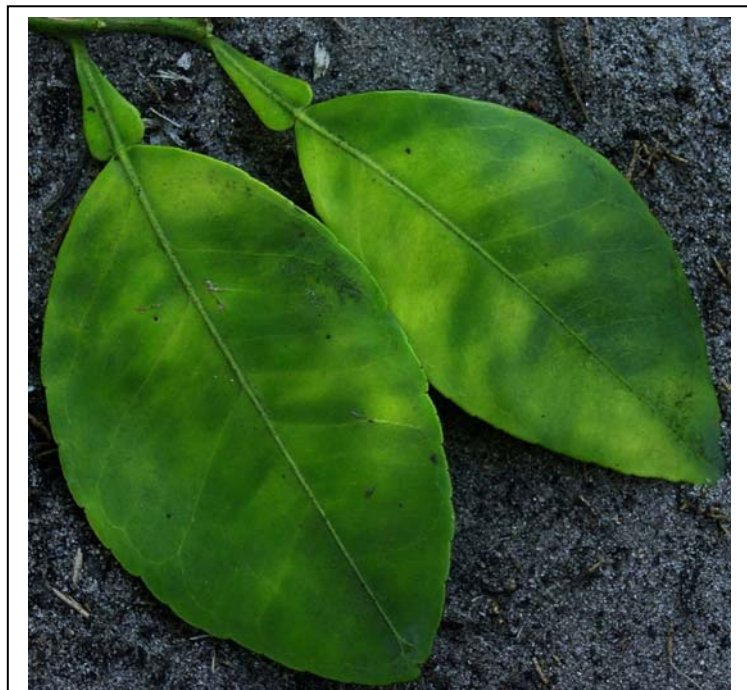
2. Samples should consist of short sections (4-6 inches or greater) of symptomatic branches with the attached leaves. If fruit are present on the branches, the fruit can either be left on or they can be trimmed off. If the fruit are trimmed off, please leave the fruit stem on the sample (i.e. trim the fruit off as close to the button as possible leaving the stem on the branch).

3. If a variety of symptoms is present, the preferred samples (in order of preference) would be:

- a. Branches with mottled leaves
  - b. Branches with leaves that have either green islands on a yellow background or yellow islands on a green background
  - c. Branches that contain shoots that are almost entirely yellow
  - d. Branches with nutrient deficiencies that have a “rabbit ear” appearance (small, upright leaves)
  - e. Branches with leaves that show chlorosis and “vein corking”
  - f. Branches with zinc and/or iron deficiencies that are not related to blight or other known causes
4. Place the leaves/twigs into a sealable (e.g. ziplock) plastic bag and keep the sample cool and out of the sunlight.

### **Sample Handling and Shipping**

1. Each sample should be in an individual sealable plastic bag (zip lock).
2. A completed sample submission form should be included in the bag (or stapled) with each sample
3. Samples should be double bagged.
  - a. When multiple samples are being submitted, multiple samples can be placed in one or more larger sealable bags, however each individual sample needs to be bagged individually and have its own individual completed sample submission form attached.
  - b. If a large number of samples are being submitted from a nursery (i.e. a nursery submission from an increase block) it is permissible to use one form to cover each bench/block.
4. Samples should be kept cool and out of direct sunlight until shipping (i.e. cooler with ice, cooler or box w/o ice kept in the shade, etc.).
5. If at all possible, the samples should be shipped or hand delivered the same day that they are collected. If same day shipment/delivery is not possible, samples should be shipped/delivered the following day provided the samples are kept cool (but not frozen).
6. Samples should be shipped by overnight mail or courier and must not be shipped or held over the weekend.
7. Sample shipment/delivery can and should be coordinated with Mike Irely ([msirey@ussugar.com](mailto:msirey@ussugar.com), **863-902-2249**).
8. If samples are received in poor condition, the samples will not be processed and the submitter will be asked to re-submit the samples.



# Huanglongbing (Greening) Sample Submission Form

(▶ Required Information)

## Submission Information

▶ Date Sample Collected: \_\_\_\_\_ ▶ Date Sent: \_\_\_\_\_  
▶ Submitter name: \_\_\_\_\_ Affiliation: \_\_\_\_\_  
▶ Address: \_\_\_\_\_  
▶ City: \_\_\_\_\_ ▶ State: \_\_\_\_\_ ▶ Zipcode: \_\_\_\_\_  
Email address: \_\_\_\_\_  
Phone Number: \_\_\_\_\_ Fax Number: \_\_\_\_\_  
▶ Results To Be Returned By: Mail \_\_\_\_\_ Email \_\_\_\_\_ Fax \_\_\_\_\_

## Grove/Nursery/Sample Information

▶ Grove/Nursery Name: \_\_\_\_\_  
▶ Address/Location Where Specimen Was Collected: \_\_\_\_\_  
▶ City: \_\_\_\_\_ ▶ County: \_\_\_\_\_  
▶ Block/Row/Tree Designation (*must provide enough information to be able to locate the specific tree sampled*): \_\_\_\_\_  
Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_  
▶ Section/Township/Range: Sample Id (local id): \_\_\_\_\_  
▶ Host Plant Name/Variety: \_\_\_\_\_  
Tree Age \_\_\_\_\_ Tree size \_\_\_\_\_ Symptomatic \_\_\_\_\_  
Additional Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

*Do not write in this area*

Date Received: \_\_\_\_\_ Lab Id: \_\_\_\_\_

**Shipping/Delivery Address: United States Sugar Corporation, Technical Operations Laboratory, 500 Saginaw Avenue, Clewiston, FL 33440, 863-902-2249 (Mike Irej)**

# DISCLAIMER, INDEMNIFICATION AND HOLD HARMLESS AGREEMENT

Date: \_\_\_\_\_ (“Effective Date”)

Company Name: \_\_\_\_\_ (“SUPPLIER”).

SUPPLIER Mailing Address: \_\_\_\_\_

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WHEREAS, SUPPLIER desires to have UNITED STATES SUGAR CORPORATION (U.S. SUGAR) conduct diagnostic assays (“PCR TESTING”) for the presence of *Liberibacter* sp., the causal agent of Huanglongbing (citrus greening) in citrus samples supplied by the SUPPLIER.

WHEREAS, SUPPLIER is agreeing to assume all responsibility and liability for the PCR TESTING, and to indemnify and hold U.S. SUGAR and its subsidiaries, and its and their officers, directors, employees, agents, and property harmless from all such responsibility and liability in connection with and in exchange for the PCR TESTING pursuant to the provisions of this Agreement.

NOW THEREFORE, in consideration of the mutual covenants and promises contained herein, which the parties acknowledge to be good and valuable consideration for their obligations hereunder, the parties hereby agree as follows:

## 1. Definitions.

1.1. The term “Proceedings” shall include, without limitation, any threatened, pending, or completed claim, action, suit, or proceeding, whether of a civil, criminal, administrative, or investigative nature, in which U.S. SUGAR is or may have been involved as a party or otherwise, directly or indirectly in connection with any PCR TESTING performed by U.S. SUGAR for or on behalf of SUPPLIER, the use by SUPPLIER of the information generated by PCR TESTING, or by reason of any action or inaction of SUPPLIER, its officers, directors, employees, agents, representatives, contractors, or sub-contractors, related in any manner whatsoever to the PCR TESTING.

1.2. The term “Expenses” shall include, without limitation: expenses of investigations, judicial or administrative proceedings or appeals; amount of judgments, fines or penalties; losses; damages; liabilities; amounts paid in settlement by or on behalf of U.S. SUGAR; attorneys’ fees and disbursements; and any expenses of establishing a right to indemnification under this Agreement.

2. General Disclaimer; No Representations or Warranties. PCR TESTING IS A RESEARCH PROTOCOL THAT MAY PRODUCE INCONCLUSIVE RESULTS OR INFORMATION. SHOULD SUPPLIER RELY UPON THE INFORMATION GENERATED BY PCR TESTING, SUPPLIER ACKNOWLEDGES THAT SUPPLIER HAS ASSUMED ALL RISKS AND LIABILITY IN DOING SO. SUPPLIER ACKNOWLEDGES THAT U.S. SUGAR HAS NOT MADE ANY REPRESENTATIONS OR WARRANTIES CONCERNING THE PCR TESTING, THE INFORMATION GENERATED BY PCR TESTING, OR ANY COMPONENT OR CONSTITUENT THEREOF, INCLUDING, WITHOUT LIMITATION, THE COMPLIANCE OF THE PCR TESTING OR ANY PART THEREOF WITH ANY GOVERNMENTAL REQUIREMENTS OR SPECIFICATIONS. SUPPLIER DOES HEREBY DISCLAIM ANY AND ALL WARRANTIES THAT MAY BE DUE FROM U.S. SUGAR TO SUPPLIER. U.S. SUGAR SHALL NOT BE LIABLE TO SUPPLIER, OR ANY OTHER



PERSON OR ENTITY, FOR ANY DAMAGES ARISING FROM, RELATED TO, OR CAUSED BY THE PCR TESTING AND/OR THE USE OF THE INFORMATION GENERATED BY PCR TESTING, INCLUDING BUT NOT LIMITED TO, ANY INCIDENTAL, SPECIAL, CONSEQUENTIAL, OR PUNITIVE DAMAGES. U.S. SUGAR MAKES NO WARRANTIES, EXPRESS OR IMPLIED, REGARDING THE VIABILITY OF ANY MATERIALS SUBMITTED OR FURNISHED TO U.S. SUGAR PURSUANT HERETO AND STORED AT U.S. SUGAR'S FACILITIES.

3. Assumption of Liability and Indemnification. SUPPLIER shall indemnify and hold U.S. SUGAR and its subsidiaries, and its and their officers, directors, employees, representatives, and property free and harmless from any and all Expenses arising out of, resulting from, in connection with, or related in any manner whatsoever to any Proceedings.

4. Right of Indemnification. Any indemnification hereunder shall be made no later than thirty (30) days after receipt by SUPPLIER of a written request from U.S. SUGAR.

5. Enforcement. The right to indemnification as provided for in this Agreement shall be enforceable by U.S. SUGAR in an action in any court of competent jurisdiction. In such an action, the burden of proving that indemnification is not required hereunder shall be on SUPPLIER. The termination of any Proceedings by judgment, order, or settlement, whether with or without court approval, shall not create a presumption that indemnification hereunder is not permitted by applicable law. The indemnification provided under this Agreement shall not be deemed exclusive of any other rights to which U.S. SUGAR may be entitled.

6. Savings Clause. If this Agreement or any portion hereof shall be invalidated on any ground by any court of competent jurisdiction, SUPPLIER shall nevertheless indemnify and hold U.S. SUGAR harmless as to Expenses with respect to any Proceedings to the full extent permitted by any applicable portion of this Agreement that shall not have been invalidated.

7. No Advertising. SUPPLIER agrees that the use of information generated by PCR TESTING is for SUPPLIER's use only. SUPPLIER shall not identify or use the information generated by PCR TESTING or the name or logo of U.S. SUGAR or its subsidiaries, or its and their officers, directors, employees, or representatives in any advertisement, public announcement, marketing material, or other similar documentation.

8. Storage of Samples Submitted. U.S. SUGAR shall not retain samples submitted for PCR TESTING longer than two (2) weeks after the completion of testing. Upon expiration of said storage period, all such samples shall be destroyed and U.S. SUGAR shall have no liability whatsoever for such destruction.

9. Breach. Breach of any terms contained herein or failure by SUPPLIER to perform any covenant, condition, or agreement contained in this Agreement shall be considered a default and shall entitle U.S. SUGAR to immediately pursue any remedy available hereunder or other remedy available at law or in equity; provided, however, that failure of U.S. SUGAR to enforce any default shall not be considered a waiver of the requirement, or the enforceability of this Agreement or any of its terms.

10. Successors. This Agreement shall be binding on and shall inure to the benefit of the heirs, executors, administrators, successors, and assigns of the parties hereto; provided, however, that SUPPLIER may not assign its rights and obligations hereunder without the prior written consent of U.S. SUGAR, which consent may be withheld in U.S. SUGAR's sole discretion. Additionally, in the event of a merger, consolidation, or reorganization in which SUPPLIER is not the surviving entity, any sale of all or substantially all of the assets of SUPPLIER, or any liquidation of SUPPLIER, SUPPLIER shall have the obligations of SUPPLIER under this Agreement expressly assumed by the survivor, purchaser, or successor, as the case may be, or SUPPLIER shall otherwise adequately provide for the satisfaction of SUPPLIER's obligations under this Agreement in a manner acceptable to U.S. SUGAR, in U.S. SUGAR's sole discretion.

11. Governing Law and Jurisdiction. The terms and provisions of this Agreement shall be construed and enforced in accordance with the laws of the State of Florida. If a dispute shall arise between the parties hereto under this Agreement, the parties voluntarily submit to the jurisdiction of the state and federal courts in Florida.

12. Entire Agreement. This Agreement sets forth the entire understanding between the parties hereto regarding the subject matter contained herein.

13. Notices. All notices required under this Agreement shall be deemed duly given if in writing and delivered by courier or certified mail, return receipt requested as follows:

If to U.S. SUGAR: c/o Legal Affairs Department, United States Sugar Corporation

111 Ponce de Leon Avenue, Clewiston, Florida 33440

If to SUPPLIER: At the mailing address listed hereinabove.

Each party has a duty to report to the other parties any changes in their mailing address.

14. Amendment. No modification or amendment of this Agreement shall be valid unless in writing and signed by both parties.

15. Full Power and Authority. The signatories to this Agreement represent and warrant, each to the other, that the signatory: (a) has read and understands this Agreement; (b) has full authority to bind the party to this Agreement represented by the signatory and that the party has full authority to enter into this Agreement and be bound by the terms and conditions of this Agreement; and (c) sets the signatory's hand hereunto with the intention of legally binding the party to this Agreement represented by the signatory.

16. Survival. The provisions in paragraphs 2, 3, 7, and 10 of this Agreement shall survive the expiration or termination of this Agreement.

17. Counterparts. This Agreement may be executed in any number of identical counterparts. If so executed, each of such counterparts is to be deemed an original for all purposes and all such counterparts shall, collectively, constitute one agreement, but, in making proof of this Agreement, it shall not be necessary to produce or account for more of such counterparts than are required to show that each party hereto executed at least one such counterpart. A facsimile or other reproduction of this Agreement may be executed by the parties, in counterparts or otherwise, and shall be considered valid, binding, and effective for all purposes.

UNITED STATES SUGAR CORPORATION

By: \_\_\_\_\_

***Print Name:*** \_\_\_\_\_

Title: \_\_\_\_\_

SUPPLIER

By: \_\_\_\_\_

Print Name: \_\_\_\_\_

Title: \_\_\_\_\_



## **DESERET CATTLE & CITRUS**

### **POSITION OPENING**

**Position:** Citrus Grove Manager  
**Location:** St. Cloud, Florida  
**Hire Date:** By March 15, 2007

### **Ranch Description:**

Deseret Cattle & Citrus is a commercial cattle and citrus operation located southeast of Orlando, FL. The ranch has 1,530 acres of citrus, which includes 200 acres of fresh varieties. It is anticipated that an additional 200 acres of citrus will be planted. The individual is responsible for financial and operational performance of the groves and will report results monthly to ranch management. The individual may additionally be given responsibility for 1,200 acres of citrus in Hendry County.

### **Responsibilities:**

- Operational and performance responsibility for 1,530 acres of citrus.
- Supervise, train, and motivate 4 to 5 permanent employees plus temporary employees and contract crews.
- Develop and implement strategic and operational plans for citrus that fit the strategic business plan of the total ranch.
- Complete all citrus operations work in a timely manner.
- Participate in budgeting process and in sharing financial results of the groves with the grove employees.
- Complete accurate and timely reports.
- Participate in monthly ranch meetings and present results as requested. Ensure planning meetings are held weekly for effective labor and equipment utilization and for safety and other training.
- Participate in business improvement and planning projects.
- Supervise handling and use of restricted use pesticides.

### **Qualifications:**

- B.S. in citrus management or related is preferred.
- 2 years+ experience in citrus management.
- Understanding of budgeting and financial reports.
- Excellent planning, people management, and problem solving skills.

### **Contacts:**

Debbie Godsey (Applications)  
Deseret Cattle & Citrus  
407-892-3672, Ext. 229  
407-892-0491 Fax  
dgodsey@fmc-slc.com

Frank Judd (Grove Information)  
Deseret Cattle & Citrus  
407-892-3672, Ext. 226  
407-892-0491 Fax  
fjudd@fmc-slc.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

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Subscriber's Name: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_

Fax: \_\_\_\_\_

E-mail: \_\_\_\_\_

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## **Racial-Ethnic Background**

\_\_ American Indian or native Alaskan

\_\_ Asian American

\_\_ Hispanic

\_\_ White, non-Hispanic

\_\_ Black, non-Hispanic

## **Gender**

\_\_ Female

\_\_ Male