



UNIVERSITY OF  
FLORIDA

EXTENSION

Institute of Food and Agricultural Sciences

Hendry County Extension • P.O. Box 68 • LaBelle, Florida 33975-0068 • (941) 674-4092

# Flatwoods Citrus



Vol. 6, No. 6

June 2003

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



## UPCOMING EVENTS

### ***Seminar at the Immokalee IFAS Center***

Tuesday, June 17, 2003, 10:00 AM –12:00 Noon

**Record keeping software for grove practices and how to find citrus information**  
(Pest Management Guide, Fact Sheets, Labels, etc.) on the Internet

Speakers: Rick Montney, Diana Hagan and Drs. Mark Ritenour and Richard Buker

**Sponsor: Aglime Sales, Inc., Babson Park, FL**

2 CEUs for Certified Crop Advisors

***Following the seminar, we are planning a free lunch (Compliments of Aglime Sales, Inc.) for only who call 863 674 4092 no later than 16 June.***

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



### **FARM SAFETY DAY**

**Saturday, June 7, 2003, Immokalee IFAS Center**

**Coordinator: Mongi Zekri**

**Phone:** 863 674 4092. **E-mail:** [maz@mail.ifas.ufl.edu](mailto:maz@mail.ifas.ufl.edu)

**CITRUS EXPO**  
**IN FORT MYERS**

Wednesday, August 27 &  
Thursday, August 28, 2003



**116<sup>th</sup> Annual Meeting of the Florida State Horticultural Society (FSHS)**

June 8-10, 2003  
Sheraton World Resort, Orlando, Florida  
<http://www.lal.ufl.edu/fshs/>

**49<sup>th</sup> Annual Meeting of the InterAmerican Society for Tropical Horticulture (ISTH)**

August 31- Sept 6, 2003  
Fortaleza, Brazil  
<http://www.isth.cjb.net/>

**Annual Conference of Extension Professionals (FAEP)**

September 8 - 11, 2003  
Jacksonville Hilton, Jacksonville, Florida  
<http://extadmin.ifas.ufl.edu/>  
<http://extadmin.ifas.ufl.edu/FAEP2003/Theme.htm>

**American Society for Horticultural Science (ASHS)**

100<sup>th</sup> Annual International Conference  
October 3-6, 2003  
Rhode Island Convention Center, Providence, Rhode Island  
<http://www.ashs.org/>

**INTERNATIONAL SOCIETY OF CITRICULTURE**

**10<sup>th</sup> International Citrus Congress**

February 15-20, 2004  
Agadir, Morocco  
[http://www.lal.ufl.edu/ISC\\_Citrus\\_homepage.htm](http://www.lal.ufl.edu/ISC_Citrus_homepage.htm)

Special Thanks to the following 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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## **Citrus Rust Mites**

Citrus rust mite is found on all citrus cultivars throughout Florida. Citrus rust mite is mainly a pest problem on fruit grown for the fresh market. However, on some cultivars such as Sunburst, Fallglo, and Ambersweet, rust mite damage can be severe on stems and foliage and may cause leaf injury and leaf drop.



Mite populations usually begin to increase in April on new foliage and reach a peak in June-July. Depending on weather conditions and the occurrence of natural enemies (predatory mites and the fungus, *Hirsutella*), citrus rust mite populations usually decline in August, but increase again in October and November.



Generally, the north bottom section of the tree is preferred and supports the highest mite populations. When rust mite injury occurs on fruit before fruit maturity (late

spring-summer), fruit size will be reduced and fruit drop may occur.

Miticides applied for the control of citrus rust mites on fresh fruit cultivars are usually combined with compatible fungicides in the spring and summer. Scouting or monitoring of rust mite populations is very important and should be carried out every 2 weeks throughout the fruit season. The number of citrus rust mite per square centimeter should be determined by averaging 80 readings per 10 acres (1 area of 1 cm<sup>2</sup> midway between the sun and shade areas of 1 fruit collected from each quadrant of 20 trees).

The threshold at which chemical treatment would be recommended is 2 mites and 10 mites/cm<sup>2</sup> for fresh fruit and processed fruit, respectively. Other methods of sampling and scouting rust mite populations and use of various types of miticides are described in the 2003 Florida citrus pest management guide. There are several miticides such as 10 oz Agri-Mek plus a minimum of 3 gal petroleum oil/acre, 8-10 gallons petroleum oil/acre, and several formulations of Micromite that can be used to control citrus rust mites. Always alternate materials to minimize development of pesticide resistance. Most miticides require a pH spray solution not to exceed 7. Other miticides, such as Comite, should not be mixed with oil because they may cause damage to leaves and fruit. Nexter and Vendex should not be mixed with copper or oil because their residual effect may be reduced.

For more details, get your copy of the 2003 Florida citrus pest management guide from your extension office.

**Always read the product label prior to use.**

Special Thanks to the following 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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# **GREASY SPOT**

Management of greasy spot must be considered in every grove whether the fruit is intended for processing or for fresh market. Greasy spot is usually severe on grapefruit, early season sweet oranges, and tangelos. In southwest Florida, greasy spot has been very severe even on other citrus cultivars. Greasy spot can be a devastating fungal disease. It causes severe leaf drop or defoliation.

Defoliation causes dieback, reduces fruit yield, and makes the tree weak and more susceptible to stresses and other pests. Yellow spots first appear on the upper leaf surface, then irregular blisters, which become dark brown or even black, slightly raised and have a greasy appearance, develop on the lower, and later, on the upper sides of the leaves.



Symptom expression takes 3-4 months in grapefruit leaves, up to 6 months on grapefruit fruit and much longer in sweet orange. Greasy spot spores germinate on the underside of the leaves and penetrate the leaves through the stomates (natural openings on the lower leaf surface). Warm humid nights and high rainfall in the summer favor infection and disease development. Favorable conditions for infection in southwest Florida occur from late May through September. Leaves are susceptible once they are fully expanded and remain susceptible throughout their

life. Two spray applications are needed to control greasy spot in southwest Florida. The first spray should be scheduled in May-June and the second in July-August. Copper fungicides are more effective when applied earlier in the season whereas petroleum oil is equally effective from June through August. Copper fungicides provide a high degree of control more consistently than oil sprays. Thorough coverage of the underside of leaves is very important and necessary for the control of greasy spot.

High spray volumes (125-150 gal/acre) and slower tractor speeds may be needed for maximum control of this fungal disease. Use 8-10 gallons of petroleum oil per acre or a copper fungicide at the label rate plus 1-2 gallons of oil. There is a high risk of fruit spray burn when 5 gallons of oil are added to 4 lbs metallic copper. For fresh fruit, petroleum oil alone is inadequate for the control of greasy spot rind blotch. Heavier oils (455 or 470) are more effective for rind blotch than lighter oils (435), but may cause phytotoxicity problems.

Copper fungicides are effective for the control of greasy spot rind blotch, but if applied in July or August at full rates in hot, dry weather with oil, they will cause fruit spotting. Enable can only be applied on grapefruit for rind blotch control on fruit and for greasy spot control on foliage. The strobilurin fungicides (Abound, Gem, Headline) can be used successfully to control greasy spot on any cultivar at any time. They can provide effective control of the disease on leaves and fruit. A strobilurin fungicide should not be applied more than once a year for greasy spot control. Addition of petroleum oil increases the efficacy of Enable, Abound, copper, and Gem.

**Always read the product label prior to use.**

# TRISTEZA

Citrus tristeza virus (CTV) is a well-known citrus viral disease causing tree losses and crop reduction in most citrus-growing areas of the world. Tristeza means sadness in Spanish. CTV was first reported in Florida in the early 1950s, but serious losses were not experienced until the 1980s after the widespread of the sour orange decline strains. In Florida, CTV is known primarily to cause tree decline and stunting of trees budded on sour orange and *Citrus macrophylla* rootstocks.

CTV is transmitted by aphids. The aphid can acquire the virus within minutes of feeding on an infected tree and transmit it to healthy trees within minutes after feeding. Aphids lose the ability to transmit the virus within 24-48 hours after leaving an infected tree.



The brown citrus aphid (*Toxoptera citricida*), which is the most efficient vector of CTV, was first detected in south Florida in the fall of 1995 and rapidly spread in 1996 throughout the Florida citrus growing areas. The cotton or melon aphid (*Aphis gossypii*) is a less efficient but effective vector. The green citrus or spirea aphid (*Aphis spiraecola*) and *Toxoptera aurantii* are relatively inefficient. The establishment of

*Toxoptera citricida* in Florida has resulted in more rapid spread of decline-inducing isolates of tristeza. Five years ago, in Florida, 18 to 20 million trees (20%) of the producing citrus trees were on sour orange rootstock. Over 12 years ago, propagation on sour orange rootstock was discontinued in Florida. In southwest Florida, a sharp increase in the decline rate of trees on sour orange rootstock has been experienced since the spring of 1998.

Initially, affected trees have small leaves and twig dieback. Diseased trees often produce a crop of very small size fruit. Eventually, large limbs die back and the tree gradually declines. In some cases, trees may suffer from quick decline and wilt and die in a matter of weeks.



CTV causes an incompatibility at the budunion. It blocks the phloem (conducting tissue located in the bark through which sugars produced in the leaves by photosynthesis are moved to roots) and girdles the tree. Death of the phloem at the bud union results in overgrowth of the scion at the bud union, destruction of feeder roots, stunting, leaf chlorosis, wilting, reduced fruit size, poor growth, dieback, and tree death.



Declining trees often show pitting consisting of small holes (honeycombing) on the inside face of a flap of bark of the rootstock removed across the budunion. Quick decline trees may only have a yellow-brown stain at the budunion. Sweet oranges are usually more affected than grapefruit. Lemons on sour orange rootstock are not affected by tristeza.

Citrus tristeza virus has a wide range of isolates of varying severities. Mild isolates do not usually cause decline of sweet orange on sour orange rootstock. More severe, decline-inducing isolates have gradually increased and groves on sour orange are declining rapidly. In some countries, CTV isolates can also cause stem-pitting in citrus scions regardless of the rootstock used. Grooves and pits appear in the wood of the trunk, branches, and twigs. Externally, branches may be twisted, ropy, and twigs may become brittle. Trees affected by stem-pitting grow poorly and have low yields and small fruit. Limes and grapefruit are most commonly affected by stem-pitting. Tangerines are generally tolerant. Isolates which cause decline of sweet orange on sour orange may also cause stem-pitting, but many decline isolates produce no stem-pitting in grapefruit or oranges. Stem-pitting has not been found in commercial citrus in Florida to date.

Currently, all budwood used for propagation must be free of MCA-13 positive strains. However, MCA-13 positive strains are spreading rapidly in the state, and it may not be possible to continue using field-produced budwood. The key to preventing problems with stem-pitting in Florida is to avoid propagation of stem-pitting isolates.

#### Recommended practices

Once tristeza-affected trees on sour orange rootstock begin to decline, there is no treatment that will reverse the decline

or prevent multiplication of the virus. Individual diseased trees should be replaced with certified trees on tolerant rootstocks as the yields decline to uneconomical levels. However, if blocks on sour orange rootstock are planted on an inappropriate row spacing, are not properly bedded, or are in need of drainage or other structural work, or the scion variety is not the preferred one, it may be desirable to allow the trees to decline to uneconomical levels and replace the entire block.



Although the brown citrus aphid is spreading decline-inducing strains of tristeza virus rapidly in some areas of the state, chemical or biological control of the aphid in groves is unlikely to reduce the spread of the disease. Transmission of the virus by the aphid is usually so rapid that it occurs before the aphid is killed by an insecticide. However, rigorous aphid control in nurseries and on budwood source trees could reduce infection rates.

Cross protection, which is the inoculation of trees with mild strains to protect them from the effects of severe strains, has been effective at extending the economic production against grapefruit and sweet orange stem-pitting strains in several countries. Cross protection against tristeza decline on sour orange rootstock has not been widely used in Florida. Results were not consistent. Considerable time is required to establish mild strains in trees, and trees must be inoculated well in advance of infection with severe strains.



# **Gulf Citrus Growers Association Scholarship Foundation, Inc.**

## **Membership:**

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

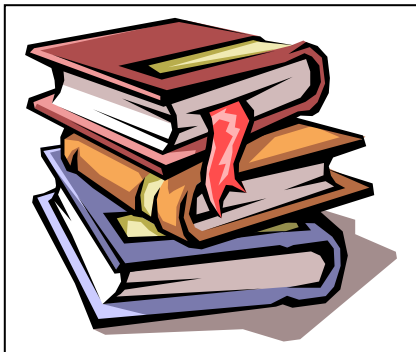
## **Donations:**

Donations are a crucial source of funding for scholarship awards and may be made to the Foundation at any time during the year in any denomination, regardless of membership status. Checks should be made payable to the Foundation. For more details, please call the GCGA office at 863 675 2180.

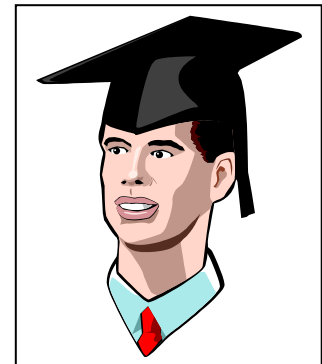
The GCGA Scholarship Foundation is a non-profit corporation operating under Section 501 © (3) of the Internal Revenue Code. Contributions are tax deductible as allowed by law.

## **Scholarship applications**

Scholarship applications are distributed through the Scholarship Selection Committee by request or through the offices which are responsible for citrus programs such as the Immokalee IFAS Center, Edison Community College, and the Citrus Institute at Florida Southern College. Applications may be requested by contacting Dr. Mongi Zekri at 863 674 4092 or [maz@mail.ifas.ufl.edu](mailto:maz@mail.ifas.ufl.edu). Applications deadlines are December 1 for the spring semester and July 1 for the fall semester. Applicants who are not selected may reapply for the next cycle. Previous award recipients may also reapply.



Please find enclosed more detailed information about requirements for scholarships and a scholarship application form.





## Gulf Citrus Growers Association Scholarship Foundation, Inc.

P. O. Box 1319, LaBelle, Florida 33975 (863) 675-2180 / Fax: (863) 675-8087

### ***About the Gulf Citrus Growers Association***

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

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

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

### ***Scholarship Criteria***

Preferred requirements for scholarships are as follows:

#### **Edison Community College:**

- Completion of all placement testing.
- Completion of **12 credit hours** with continuous enrollment.
- Minimum overall grade point average of **2.5**.
- A demonstrated **commitment** to complete the AA degree with citrus courses.

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

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

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



# Gulf Citrus Growers Association Scholarship Foundation, Inc.

P. O. Box 1319, LaBelle, Florida 33975 (863) 675-2180 / Fax: (863) 675-8087

## Scholarship Application

### Personal Data

Name: \_\_\_\_\_ SS #: \_\_\_\_\_

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

City/State: \_\_\_\_\_ Zip: \_\_\_\_\_ Phone: \_\_\_\_\_

Employer: \_\_\_\_\_

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

City/State: \_\_\_\_\_ Zip: \_\_\_\_\_ Phone: \_\_\_\_\_

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

---

### Educational Information

College or University in which you are enrolled: \_\_\_\_\_

Department / Degree Program: \_\_\_\_\_

I am working toward the following: AA \_\_\_\_\_ BS \_\_\_\_\_ MS \_\_\_\_\_ PhD \_\_\_\_\_ Other \_\_\_\_\_

Courses Taken in Major (*both completed and those in which you are currently enrolled*):

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

Expected Date of Graduation: \_\_\_\_\_

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

**What are your career goals?** \_\_\_\_\_

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

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

\_\_\_\_\_  
Applicant's Signature

\_\_\_\_\_  
Date

---

**\*\*\*APPLICATION DEADLINES ARE DECEMBER 1 AND JULY 1\*\*\***

**Please return this application to:**

Gulf Citrus Growers Association Scholarship Foundation, Inc.  
Dr. Mongi Zekri, Application Coordinator  
Hendry County Extension Office  
P. O. Box 68  
LaBelle, FL 33975  
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