

# Citrus Notes



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*Dear Growers,*

*This April issue of "Citrus Notes" has undergone a small facelift. I hope that it is not too much of a cultural shock to you. It is interesting how over the years we continue to use processes that we feel most comfortable with and sometimes do not evaluate the need for improvements. Knowing how change affects some folks, I hope that you find the newsletter more readable. We have not changed the content or the process of selecting topics that we feel are most important to you, the Florida citrus grower. As always if you need any additional information or have questions please call me.*

*Enjo,*

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## ***Citrus Fungicide Effectiveness***

Dr. Pete Timmer, from the UF/IFAS Citrus Research and Education Center, provided the following table on fungicide effectiveness.

<u>Product</u>	<u>Canker</u>	<u>Greasy Spot</u>	<u>Alternaria Brown Spot</u>
Copper	Good	Excellent	Good
Petroleum Oil	None	Good	None
Ferbam	None	Weak	Moderate
Topsin	None	Excellent (R)	None
Headline	None	Good	Very Good
Abound	None	Good	Very Good
Enable	None	Excellent	Poor
Gem	None	Good	Good
Trilogy	None	Weak	Fair

<u>Product</u>	<u>Scab</u>	<u>Melaonse</u>	<u>PFD</u>
Copper	Moderate	Excellent	Poor
Petroleum Oil	None	None	None
Ferbam	Good	Weak	Moderate
Topsin	Excellent (R)	Weak	Good
Headline	Excellent	Good	Moderate
Abound	Excellent	Good	Moderate
Enable	Good	Weak	?
Gem	Excellent	Good	Moderate
Trilogy	None	None	None

Care should be exercised when using Topsin for control of scab and greasy spot due to possible disease resistance

with multiple applications. It is currently recommended that if multiple applications of the strobilurins fungicides (Gem, Abound and Headline)

are planned, they should be alternated with a fungicide that has a different mode of action.

## ***Citrus Greening Update***



The latest information from

Florida Department of Agriculture and Consumers Services, Division of Plant Industry has confirmed a number of new locations to have developed citrus greening. The newly established finds were in residential areas of Orange and Volusia Counties. This increases the number of Florida Counties with at least one positive citrus greening find to 20.

## ***Watch out for Spiders***



As we enter into the typically dry time of the

year, conditions become favorable for the development of high populations of spider mites. These mites are generally not problematic for developing fruit, but can cause a significant amount of defoliation if high populations are allowed to develop on foliage.

In Florida there are predominately 3 species of spider mites found attacking Florida citrus. The Texas spider mite (fig. 1), citrus red mite (fig. 2) and the

six-spotted mite (fig. 3), are the species that have the potential to cause significant damage to foliage.

Environmental conditions favorable to this complex of spider mites include; dry weather and low relative humidity (30-

60%). These conditions occur most often in Florida during the late spring and fall. We had a considerable amount of warm weather this past winter and hopefully with the late season cold snaps, spider mite populations may have been slowed.



Figure 1. Male Texas citrus mite.



Figure 2. Male citrus red mite.



Figure 3. Six-spotted spider mites and eggs.

Two species of the spider mites feed on mature citrus leaves damaging the layer of cells that lie directly under the epidermal cells on the upper leaf surface (Texas and red spiders). This damage makes leaves appear grayish/silver and

dull rather than green. If abundant populations are allowed to develop, cell destruction and reduction in leaf photosynthesis occurs. This damage (called mesophyll collapse) can cause a significant amount of defoliation or firing (fig. 4) alone or in combination with sustained dry windy conditions during these times of the year.



Figure 4. Firing caused by mesophyll collapse due to mite feeding.

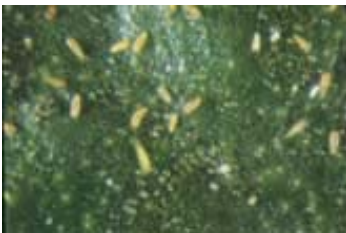
The six-spotted spider mite feeds primarily on the lower leaf surface and is considered a sporadic pest in Florida. The six-spotted mite is going to be found more often after abundantly cold winters. The resulting damage caused by this mite is localized to the main vein of the leaf resulting in a yellowing of the main vein that is visible from the upper surface of the leaf (fig. 5). Severe infestations of this mite can result in critical defoliation reducing photosynthesis.



Figure 5. Yellowing of main vein due to six-spotted mite feeding on underside of leaf.

Economic thresholds for spider mites are going to be based on temperature, humidity, beginning population levels, tree vigor and time of year. There are a number of materials recommended for spider mite control contained in the 2007 Florida Citrus Pest Management Guide. These include Kelthane (dicofol) in the spring, Envirdor anytime during the year, Vendex in the spring or fall, petroleum oil in the summer and Comite for fall applications.

As always, read and follow the label directions, do not make multiple applications of materials with the same miticide activity more than once a year (this does not apply to petroleum oil). Some of the recommended materials have reduced mite activity when combined with additional spray materials.



### ***The Pink Citrus Rust Mite***

The pink citrus rust mite (PCRM) is the rust mite that will generally be your problem this time of the year. Growers should be on the

lookout for this mite due to fruit damage caused early on in the growing season.

PCRM feeds on green stems, leaves and fruit and on some rust mite sensitive varieties (sunburst tangerines), damage can be significantly severe. It is also not unusual to find both the PCRM and citrus rust mite (CRM) on the same plant material at the same time.

The PCRM is smaller than the CRM; it is also narrower and more rounded. PCRM is pink in color versus the yellowish straw color of the CRM (color though can not always be a determining factor). Populations begin developing in April and May on new foliage then migrate to fruit causing pronounced reduction in fruit enlargement (fig. 6). PCRM populations are more abundant during drier weather and peak in mid-June to mid-July depending on environmental conditions.



Figure 6. Early pink citrus rust mite damage on Valencias

Scouting recommendations for processed fruit are that you begin monitoring for PCRM populations in April, observing fruit and leaves on 2 to 3 week intervals, continuing throughout the fruit season. Uniform 10 to 40 acres blocks of similar varieties receiving the same cultural practices should be selected. Using 20 randomly selected

trees per 10 acres, examine 4 fruit per tree. Record the number of mites per lens field from each fruit from the 20 selected trees/10 acres. This will give you 80 readings for 10 acres. Determine the average number of mites per/lens field\* for the 10-acre block. An average of 6 mites/lens field\* would indicate that application of a miticide might be required in 10 to 14 days. Averages of 10 or more mites/lens field\* might require treatment as soon as possible.

In fresh fruit blocks, follow the same procedure with the following exceptions: 1) scouting for mites should be done on a 10-14 day schedule, 2) use a threshold of 2 mites/lens field\* for considering miticide applications.

\* a lens field is considered a  $\text{cm}^2$ .

### ***Recommendations for using Copper Fungicides***

The following recommendations came directly from Dr. Pete Timmer, of the UF/IFAS Citrus Research and Education Center in Lake Alfred as presented at the 2007 Florida Citrus Growers Institute.

#### **Copper sprays for citrus canker control:**

Processed oranges – apply mid-May, June and early July for early oranges; for late oranges June and early July.

Fresh grapefruit – first flush at 50% expansion, then every 3 weeks – from late April to mid July.

Fallglo, Navels, other fresh oranges and tangelos – every 3 weeks from late April to mid July.

Alternaria - susceptible tangerines – first flush and every 3 weeks from late April to mid July.

#### **Integration of canker spray program with a traditional fungal disease program:**

Scab susceptible varieties – add ferbam, Enable or strobilurin for first flush and petal fall sprays. Copper is not adequate for early scab control.

Alternaria – copper effective and should be sufficient. Add strobilurin at first flush or as needed in severe infestations.

Melanose – copper program should be adequate; if strobilurin used add low rate of copper.

Greasy Spot – copper program adequate. Add oil as needed for mite and leaf miner control.

Post-bloom Fruit Drop (PFD) – copper not effective, use Topsin or strobilurin plus ferbam; no copper during bloom.

#### **Copper Rates:**

Flush – can only be protected for a few days – 0.5 pounds metallic copper.

Fruit – 3-week intervals – 1.0-2.0 pounds metallic copper depending on product.

Frequent sprays (eg, Alternaria and canker) – 0.5-1.0 pounds metallic copper.

#### **Copper Toxicity:**

Occurs in hot dry weather, delay sprays during these periods. If spraying under

these conditions use copper alone at low rates in spray volumes greater than 100 gallons per acre. Under these conditions avoid the use of adjuvants or oil; use copper alone whenever possible, especially avoid oil, micronutrients and phosphorous acid compounds.

### ***Pesticide News and Information***



#### **Topsin®**

The EPA has again approved the specific exemption under Section 18 of FIFRA for the use of thiophanate (Topsin®) on citrus to control post-bloom fruit drop and stem-end rot. The exemption expires March 2, 2008. (FDACS letter of 3/7/07).

#### **Ultiflora®**

On February 26, the FDACS registered Ultiflora® (milbemectin) insecticide/miticide for control of spider and eriophyid mites on ornamental plantings grown in outdoor field nurseries and non-bearing fruit/nut/citrus/vines. The EPA registration number for the Gowan product is 10163-280. (PREC Agenda, 4/5/07).

#### **Mosquito Control**

EPA's new Web fact sheet on outdoor residential misting systems, also known as mosquito misting systems, will help consumers decide if residential pesticide misting systems are appropriate for their home, understand safety precautions for

using outdoor misting systems, find related information on a variety of methods for mosquito control, and understand the role of the EPA and state agencies in regulating misters. EPA developed this fact sheet because an increasing number of households have purchased timed-release outdoor residential misting systems to control mosquitoes and other insects around the home. However, advertisers, the media, and other sources sometimes provide information about misting systems that is difficult to understand or might conflict with other information. The new Web page describes outdoor residential misting systems and discusses the pesticides used in the systems, their safety and effectiveness, and the regulatory authority of EPA and state governments regarding misting systems. The Outdoor Residential Misting Systems fact sheet is available on EPA's Web site at

[http://www.epa.gov/pesticides/factsheets/misting\\_systems.htm](http://www.epa.gov/pesticides/factsheets/misting_systems.htm) (EPA OPP Update, 4/6/07).

### ***Annual Meeting of the Florida State Horticultural Society***



The 120<sup>th</sup> annual meeting of the Florida State Horticultural Society will be held June 3- 5 at the PGA National Resort & Spa in Palm Beach Gardens Florida. I have included the press release with additional information. The website for the society is <http://www.fshs.org> . At this site you will find resort information and meeting registration.