



UNIVERSITY OF
FLORIDA

IFAS EXTENSION

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

Flatwoods Citrus

Vol. 8, No. 3

March 2005

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



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

☺ **Irrigation management**

☺ **Soil moisture monitoring devices for irrigation scheduling** ☺ **Microirrigation plugging problems and ways to attack them**

Date: Tuesday, 22 March 2005, 10:00 AM – 12:00 Noon

Location: SW Florida Research & Education Center, Immokalee

Speakers: Drs. Larry Parsons, Sanjay Shukla, and Tom Obreza

2 CEUs for Certified Crop Advisors

Sponsor: Doug Brown, Irra-Chemical Co.

Following the seminar, we are planning a free lunch (Compliments of Irra-Chemical Co.). To reserve lunch, call 863 674 4092 no later than Monday, 21 March 2005.

☺ **Update on greasy spot control**

☺ **Managing Phytophthora diseases and interactions with Diaprepes**

Date: Tuesday, 19 April 2005, 10:00 AM – 12:00 Noon

Location: SW Florida Research & Education Center, Immokalee

Speakers: Drs. Pete Timmer and Jim Graham

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

Sponsor: Rachel Walters, Bayer CropScience

The Institute of Food and Agricultural Sciences (IFAS) is an Equal Employment Opportunity – Affirmative Action Employer authorized to provide research, educational information and other services only to individuals and institutions that function without regard to race, color, sex, age, handicap or national origin.
U.S. DEPARTMENT OF AGRICULTURE, COOPERATIVE EXTENSION SERVICE, UNIVERSITY OF FLORIDA, IFAS, FLORIDA A. & M. UNIVERSITY COOPERATIVE EXTENSION PROGRAM, AND BOARDS OF COUNTY COMMISSIONERS COOPERATING.

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

- ☺ Citrus Nitrogen Accumulation, Uptake and Cycling
- ☺ Leaf and soil sampling and analysis to adjust citrus
fertilizer programs

Date: Tuesday, 17 May 2005, 10:00 AM – 12:00 Noon

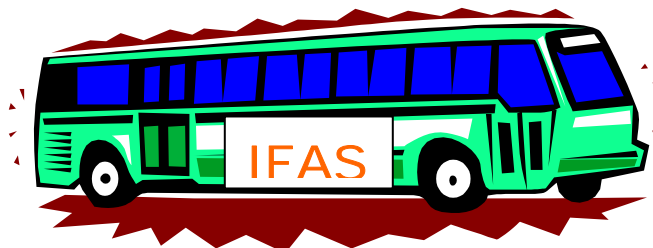
Location: SW Florida Research & Education Center, Immokalee

Speakers: Drs. Kelly Morgan and Mongi Zekri

2 CEUs for Certified Crop Advisors

Sponsor: Danny Jones, Diamond R

COLLIER COUNTY EXTENSION AG TOURS



Wednesday 16 March and Friday 18 March 2004

For more information or to sign up, call 239 353 4244.

Aquatic Weed Control Short Course

www.conference.ifas.ufl.edu/aw

Date & Location: May-16-20, 2005, Fort Lauderdale Marriott North.

To qualify for the reduced, early registration fee, payment must accompany your
registration on or before March 31, 2005.



FARM SAFETY DAY

Saturday, June 4, 2005, Immokalee IFAS Center

Coordinator: Mongi Zekri

118th Annual Meeting of the Florida State
Horticultural Society (FSHS)

Date: June 5-7, 2005

Location: MARRIOTT TAMPA WESTSHORE

<http://www.lal.ufl.edu/fshs/>

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

Susan S. Thayer



8400 Lake Trask Rd.
P.O. Box 1849, Dundee, FL 33838
Phone: 800 881 6994

David Courtney

Creel Tractor Company

3771 Palm Beach Blvd
Fort Myers, FL 33916
Phone: 1 800 282 7949
Fax: 239 694 6059

MONSANTO

Mike Prescott

Phone: 863 773 5103

Nextel Agnet: 886

Thad G. Boatwright

Phone: 561 478 4970

Nextel Agnet: 10556

Donald Allen

AGLIME SALES, INC.

1375 Thornburg Road
Babson Park, FL 33827-9549
Mobile: 863 287 2925
Agnet # 52925

Wayne Simmons

SIMMONS CITRUS NURSERY

1600 Hwy 29 South
LaBelle, FL 33935
Phone: 863 675 4319
Fax: 863 675 6963

Ed Early

DU PONT Ag. Products

5100 S. Cleveland Ave., Suite 318-368
Fort Myers, FL 33907
Phone: 239 332 1467
Fax: 239 332 1707

Robert F. Gregg

SYNGENTA

11051 Championship Drive
Fort Myers, FL 33913
Phone: 239 561 8568
Fax: 239 561 8569

FIRST BANK

P.O. Box 697
LaBelle, FL 33975
Phone: 863 675 4242
Fax: 863 675 1099
Moore Haven: 863 946 1515

GeoAg Solutions

David Summers (863) 441 1200
dsummers@geoagsolutions.com

Neal Horrom (239) 369 9806
nhorrom@geoagsolutions.com
www.geoagsolutions.com

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

Bart Hoopingarner
Cerexagri, Inc.
11933 3rd Street East
Parrish, FL 34219
Phone: 941 737 7444
Fax: 941 776 8127

Nufarm Agriculture USA
Craig Noll
Office-239 549 2494
Mobile-239 691 8060
craig.noll@us.nufarm.com
Gary Simmons
Phone: 772 260 1058

Meghan Zielinski
Dow AgroSciences
Phone: 863 537 2334
Nextel: 158*17*15098
mjzielinski@dow.com

Jerry Southwell
Yara North America
574 Green Ash Lane
Wauchula, FL 33873
Phone: 863 773 0154
Fax: 863 773 5088

Craig Whatley

CitriBlen[®]
The Scotts Company
Office: 205 408 7157
Cell: 205 329 1347
Craig.Whatley@Scotts.com

Robert M. Bancroft
Citrus Hedging, Inc.
P.O. Box 1366
LaBelle, FL 33975
Phone: 863 675 2190
Fax: 863 675 2104

FARM CREDIT
SOUTHWEST FLORIDA
330 N. Brevard Ave.
Arcadia, FL 34266
Phone: 800 307 5677
Fax: 941 494 6460

Rachel M. Walters
BAYER CropScience
Phone & Fax: 239 542 8831
Mobile: 239 707 1198
E-mail:
rachel.walters@bayercropscience.com

Gaylon D. Pfeiffer
BASF Corporation
11806 Marblehead Drive
Tampa, FL 33626
Phone: 813 967 0024
Fax: 813 818 8694
pfeiffg@basf-corp.com

PFD



Postbloom fruit drop (PFD) fungal disease can attack all citrus varieties. It is more of a problem on Navels and Valencias. The fungus attacks flowers and causes the fruitlets to drop leaving persistent calices or buttons.



Millions of spores per button can survive to the next season. Most spores are produced directly on the surface of infected petals. The spores are splash-dispersed by rains to healthy flowers where they can cause infections within 24 hours. Extended bloom periods, frequent rains, and warm weather are favorable conditions for disease development. 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. Ferbam is not effective to be used alone, but can be combined with Abound, Gem, or Headline to maximize protection and reduce the

risk of resistance development.

Neither Abound, Gem, nor Headline should be used alone more than once per season.

For more details, get your copy of the 2005 Florida Citrus Pest Management Guide (**Form is enclosed**).

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/>), including the PFD-Fungicide Application Decision System (PFD-FAD) and the Alter-Rater model for scheduling fungicide applications for Alternaria brown spot.

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.

Postbloom Fruit Drop (PFD)

(By Dr. Pete Timmer)



PFD – FAD

(Postbloom Fruit Drop – Fungicide Application Decision)

Get to this website:

<http://infotech.ifas.ufl.edu/disc/pfd>

Fungicides for PFD

Topsin M	2.0 lb
Abound 2.08F + Ferbam	12.4 fl. oz + 5 lb
Gem + Ferbam	4.0 oz + 5 lb
Headline + Ferbam	9.0 fl. oz + 5 lb

Dr. L.W. “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/>

Call the Citrus Disease Hotline 866-365-3017

ALTERNARIA BROWN SPOT



Alternaria fungal disease can cause severe leaf and fruit drop particularly in Minneola (Honeybell) and Orlando tangelos, Dancy tangerine, and Murcott (Honey tangerine). Alternaria must be controlled on these cultivars to obtain high yields of good quality fruit. The spores of this disease are air borne, but require moisture for germination and infection. Leaf tissue is susceptible until it is fully expanded and fruit is susceptible for about 3 months after bloom. When new groves of the above cultivars are planted, only disease-free nursery stock should be used. Trees should be spaced more widely than oranges to promote rapid drying of the canopy. It is best to locate susceptible varieties in high areas where air drainage and ventilation are good so that leaves dry more rapidly. Irrigation, fertilization, hedging, topping, and skirting should be carefully monitored so that excessive vegetative growth is minimized. Copper fungicides, Abound, Gem, Ferbam, Headline, and Trilogy are the materials registered for the control of this disease. The first spray should be applied when the spring flush leaves are 1/4-1/2 expanded. In severe cases, another spray should be applied when the leaves are near full expansion to reduce the infection on the

fruit. Another spray should be scheduled shortly after petal fall. Abound, Ferbam, Gem or Headline may be the best choice for one or two applications especially if the grove has problems with both scab and Alternaria. From April through June, spray applications may be needed as often as every 10 days or as infrequently as once a month depending on the frequency and amount of rainfall and the rate of infection in the grove. Copper fungicides can be used from April through May, but can produce fruit blemishes if applied during hot weather. Therefore, Abound, Gem, Ferbam, Headline, and Trilogy may be substituted for copper in June or July applications. Abound, Gem, and Headline are strobilurin fungicides and Alternaria has the potential to develop resistance to these products. Strobilurin should not be used for Alternaria control more than 3 times in a season and never more than 2 applications in a row. Gem is not highly effective for control of Alternaria. Trilogy and Ferbam are less effective for Alternaria control than copper, Abound or Headline.



For more information, get your copy of the 2005 Florida Citrus Pest Management Guide at <http://www.crec.ifas.ufl.edu/CRECH/OME/groweraids.htm>

Fungicide effectiveness (By Dr. Timmer)

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

For Alternaria Brown Spot, Use the Alter-Rater Model and Evaluations at
<http://www.lal.ufl.edu/timmer/Alterater.htm>

The Alter-Rater suggested threshold scores

Score	Situation
50	Heavily infested Minneola, Dancy, Orlando, Sunburst; Many Flatwood groves, east coast, and SW Florida.
100	Moderately infested Minneola or Dancy, many Murcotts, Ridge and north Florida groves.
150	Light infestations, any variety, mostly Ridge and north Florida groves.

CITRUS SCAB



This fungal disease affects grapefruit, Temple orange, Murcott, tangelos, and some other tangerine hybrids. If leaves from the previous season are heavily infected by citrus scab, 3 applications should be scheduled to control this disease. The first spray should be applied at about ¼ expansion of the spring flush leaves, the second at petal fall and the third about 3 weeks later. Fruit becomes resistant to scab about 2 months after petal fall. Ferbam, Abound, Gem, or Headline are good choices for the first application because they are able to kill the fungus in old lesions and thus reduce the inoculum and protect the foliage. Whichever of these products was not used in the first spray may then be used in the petal fall spray. Copper fungicides, Abound, Gem, or Headline are good choices for the third spray since they will protect fruit from early melanose as well as from scab. On tangelos and Murcott, Alternaria brown spot and scab occur together. Under this circumstance, either copper fungicides, Abound, Gem, or Headline should be selected for the 3 sprays. Ferbam is less effective against Alternaria. If used more

than once a year, resistance of the scab fungus to Abound, Gem, or Headline may develop.

For more details, get your copy of the 2005 Florida Citrus Pest Management Guide (**Form is enclosed**).

**DO NOT APPLY ABOUND, GEM,
or HEADLINE IN NURSERIES.**



Timmer's Recommendations

•Spring flush

Abound, Gem, Headline,
Ferbam

•Petal fall

Abound, Gem, Headline,
Ferbam

•3 weeks later

Cu fungicides, Abound,
Gem, Headline

•Do not use Abound, Gem, or Headline more than once.

IRRIGATION



Despite our large yearly rainfall of 50-60 inches, which exceeds the citrus water requirement or evapotranspiration (ET), Florida citrus growers and production managers should keep in their mind that they can't grow citrus successfully and competitively without supplemental irrigation. Through research and field experience, we know that irrigation is necessary because of the non-uniform distribution of the rainfall and the very limited water holding capacity of Florida sandy soils.

Irrigation is of particular importance during the dry period (February-May), which coincides with the critical stages of leaf expansion, bloom, fruit set, and fruit enlargement.

Proper irrigation scheduling is defined as the application of water when needed and in the amounts needed. Citrus production managers should accurately determine when and for how long to irrigate. With proper irrigation scheduling, tree growth and fruit yield will not be limited by water stress or water excess. Over-watering will waste water and pumping energy, will leach nutrients and other chemicals below the rootzone, and will contribute to contamination of the groundwater.

Because of the high water table in southwest Florida, citrus trees have over 90% of their feeder roots within the top foot of soil. For this situation, irrigating for long duration can lead to loss of water below the rootzone. Therefore, it is recommended to increase the

frequency and reduce the length or duration of irrigation. Irrigating every other day is better than irrigating once or twice a week. Research work in Florida has shown the importance of the area wetted by irrigation systems. When managed properly, greater area coverage by irrigation emitters provides higher yield than very limited coverage.

Because of the relatively high annual rainfall in Florida, roots of mature trees are spread throughout the grove and are not restricted to the wetted area by the irrigation system emitters. Roots are commonly found in the middles between tree rows and outside the wetted zone by microirrigation systems. Therefore, it is important to have the irrigation system cover most of the area under the tree canopy and even slightly outside the canopy dripline.

Drip systems may not provide enough water to mature citrus trees in Florida because of the limited horizontal distribution of water on poor fine sands. Irrigating with drip systems for too long will neither provide more coverage nor reduce water stress and wilting, but will drive most of the water below the shallow rootzone. Increasing irrigation frequency rather than duration with microirrigation systems is one of the most important factors improving water use efficiency. Raising the water table in the ditches or water furrows will certainly help the trees recover from water stress.

Good water management practices should include precise irrigation scheduling and well-designed, uniform irrigation systems to minimize waste. Non-uniform irrigation will cause excess water to be applied in some areas while other areas will not get enough. Production managers should not only be aware of the losses resulting from irrigation systems that apply water and chemicals non-uniformly, but should adopt the recommended ways to minimize these losses.

For a free evaluation of your irrigation system and recommendations to improve your system, **contact Bob Beck at 239 455 4100.**

Sprayer calibration

Sprayers must be checked to ensure all nozzles are applying pesticides uniformly and at the correct rate. Make sure your equipment is working properly and calibrated to ensure the correct amount of pesticide is delivered to the target area.

Pesticide application, greater than the label rate, is illegal and can result in needless risk to groundwater, increased production costs, and crop damage. Under-application might be costly by not properly controlling the target pest. Although you can sometimes repeat the application, doing so is time-consuming, costs more, increases the risk of applying too much and increases the risk in pesticide resistance.

Regular sprayer calibration includes measuring the output of each nozzle to ensure all nozzles are functioning properly. Specific calibration guides are available from a number of sources. Sprayer calibration should be done every time a different pesticide is applied or at least once each season.

The rate of application depends partly on the particle or droplet size, texture, and other properties of the pesticide being applied. Use only water during the test if the pesticide is a liquid. Contact the manufacturer to get reliable information regarding carrier material to perform the tests if the pesticide is a dust, granule, or fumigant, or a liquid diluted with a liquid other than water.

Follow calibration and mixing instructions carefully. Mixing, loading, and calibration methods must also conform to the speed of the application machinery. Moving too fast or too slow changes the rate of application.

Minimizing spray drift

Spray drift, movement of a pesticide through air during or after application to a site other than the intended site of application is a challenging issue facing pesticide applicators. Complete elimination of spray drift is impossible. However, drift can be minimized by following these control measures:

1. Read and follow the pesticide label.
2. Select low or nonvolatile pesticides.
3. Use spray additives following label guidelines.
4. Use large orifice sizes for spray nozzles.
5. Avoid high sprayer pressures, which create finer droplets.
6. Use drift reduction nozzles.
7. Use wide-angle nozzles, lower spray boom heights, and keep spray boom stable.
8. Do not spray when wind speeds exceed 10 mph and when wind direction is directed toward sensitive vegetation.
9. Use a shielded spray boom when wind conditions exceed preferred conditions.
10. Avoid spraying on extremely hot and dry days, especially if sensitive vegetation is nearby.
11. Keep good records and evaluate the results.



Importance of spreader calibration and maintenance

Properly calibrated and maintained equipment ensures a more uniform distribution of nutrients. This, combined with other conservation practices, reduces production costs, soil surface runoff, and nutrient movement to nearby surface waters. Spreaders that have not been properly maintained and calibrated will have problems delivering accurate rates and evenly distributed fertilizer amounts to the grown crop.

Calibration

Calibration is the process used to help ensure that the equipment applies proper rates of the selected product. Proper calibration is the key to successful fertilizer use efficiency. Failure to calibrate equipment can result in ineffective applications. Applying too much is costly, unlawful and may cause crop injury. Applying too little can result in poor crop growth and production. It is important to calibrate equipment on a regular basis to compensate for variations. The equipment will become worn or damaged with use and result in inaccurate output and spread pattern.

Two items must be considered when calibrating a spreader. The first is the distribution pattern of the spreader. The second is the product application rate, which is the amount of product applied per acre. There are many factors that affect the distribution pattern of a rotary spreader and some of them relate directly to the product. For this reason, it is recommended that the spreader be calibrated separately for every product to be applied. Spreader calibration should be

checked more often when the spreader is used frequently.

Product & application

Choose a product according to the need of the crop. Before applying the product, read the spreader manual. The spreader manual will usually indicate proper settings for various application rates. However, calibration still needs to be performed to ensure the settings are accurate and to compensate for wear and variations in equipment. Be sure that the proper procedures and application rates are followed. Check the 'spread pattern' and amount being applied. The physical properties of dry fertilizer can vary widely. Since larger particles are thrown further than small particles, a product of uniform size should be used to achieve a consistent application pattern. It is essential to maintain a constant speed when using a rotary spreader to obtain uniform and accurate distribution.

Maintenance and Cleaning

Proper care and maintenance will help retain precise applications and prolong the life of spreaders. Manufacturer's directions on cleaning and lubricating should be followed. With the shutter or gate wide open, remove all granules from the spreader at the end of each application. Then, the spreader should be thoroughly washed and allowed to dry. Hot water may help break loose fertilizer which is caked on. Finally, lubricate the spreader according to instructions. Spreaders should be stored in a clean, dry place out of direct sunlight.



FLATWOODS CITRUS NEWSLETTER

☐ 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