



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. 4, No. 5 May 2001

Mongi Zekri, Multi-County Citrus Agent, SWF

UPCOMING EVENTS

SOUTHWEST FLORIDA CITRUS SQUEEZER SEMINARS AND WORKSHOPS

*These events will be held at the Southwest Florida Research & Education Center in Immokalee.

-Managing resets in Tristeza and Blight infected blocks,

-Citrus psyllid and citrus canker

Date: Tuesday, May 15, 2001, **9:00 AM –12:00 Noon**

Location: Immokalee IFAS Center

Speakers: Jack Neitzke, Deborah Smith and Drs. Fritz Roka and Phil Stansly

3 CEU for Pesticide License Renewal

3 CEU for Certified Crop Advisors

Sponsor: Mark Verbeck, Bayer, Inc., Alva

Following the seminar, we are planning a free lunch (Compliments of Bayer, Inc.) for only who call Sheila at 863 674 4092 no later than Friday, 11 May.

Participants with disabilities seeking accommodations, please inform us at least five working days prior to the program

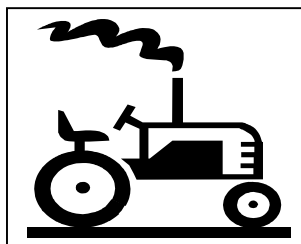
Farm Safety Day

Date: Saturday, June 2, 2001, 7:45 AM – 2:45 PM

Location: Immokalee IFAS Center

3 CEU for Pesticide License Renewal

Coordinator: Dr. Mongi Zekri



Special Seminars

***E-Commerce: Agriculture's Newest Tool**

Date: June 5, 2001, 10:00 AM - 12:00 Noon, Location: Immokalee IFAS Center

Speaker: Scott Peoples, Director of Marketing of XS Ag. , Inc

Free lunch will be provided to all attendees

***The benefits and concerns of using biosolids and poultry manure as nutrient sources for citrus production**

Date: June 26, 2001, 10:00 AM - 12:00 Noon, Location: Immokalee IFAS Center

Speakers: Drs. Tom Obreza & Monica Ozores-Hampton

2 CEUs for Certified Crop Advisors

Sponsor: Resource Reclamation Services, Inc.- Bill Townshend, Miami

Other Meetings & Programs

Citrus Water Summit (more details and registration form inside)

Date: May 23, 2001, 9:00 AM- 4:30 PM, **Location**: Lake Alfred Citrus Research & Education Center. For more information, call Dr. Larry Parsons at 863 956 1151 or at lrp@lal.ufl.edu

Annual Meeting of the Florida State Horticultural Society

Date: June 10-12, 2001, **Location**: Hutchinson Island Marriott Resort & Marina

Citrus Expo

Date: August 22-23, 2001, **Location**: Lee Civic Center, Fort Myers

For more information, call Dr. Bob Rouse at 941 658 3400

Annual meeting of the Florida Associations of Extension Professionals (FAEP)

Date: September 10-14, 2001, **Location**: West Palm Beach

Florida Agricultural Conference & Trade Show (FACTS)

Date: October 1-5, 2001

Location: Lakeland Center, Lakeland

For more information, call Dr. Ed Stover at 561 468 3922

47th Annual Meeting of the Interamerican Society for Tropical Horticulture

Date: October 1-5, 2001

Location: Cuernavaca/Oaxtepec, Morelos, Mexico

For more information, go to www.isth.cjb.net or contact Dr. Richard Campbell, Executive Secretary-Treasurer at Fax: 305 665 8032, E-mail: rcampbell@fairchildgarden.org

Hendry County Extension Ag Tour

Date: December 8, 2001. For more information, call Inez at 863 674 4092



Special Thanks to the following sponsors of the Faltwoods 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. Leaf injury can be severe and may result in significant leaf drop particularly for Ambersweet, Fallglo, and Sunburst varieties. 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 cm² 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/cm² 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 2001 Florida citrus pest management guide. There are several miticides such as 10 oz Agri-Mek plus a minimum of 1 gal petroleum oil/acre, 10 gallons petroleum oil/acre, and several formulations of Micromite that can be used to control citrus rust mites. Get your copy of the 2001 Florida citrus pest management guide from your extension office. 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, Nexter, and Vendex should not be mixed with copper or oil because they may cause damage to leaves and fruit and/or their residual effect may be reduced. Always read the product label prior to use.

EntoNet

You can get an effective scouting program through the EntoNet. The EntoNet has many features including: Easy to Use Grower Software, Graphical Displays of Pest Density, Confidential Reporting and Interpretation, Grove Management Training and Simulation Software, Conduct Grove Surveys, Decision Support Models for Pest, Weed, and Water Management. For more information on the team involved in designing and developing EntoNet, visit <http://www.entonet.com/about.html>

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 Phone: 863 674 4092, Fax: 863 674 4636, or maz@gnv.ifas.ufl.edu

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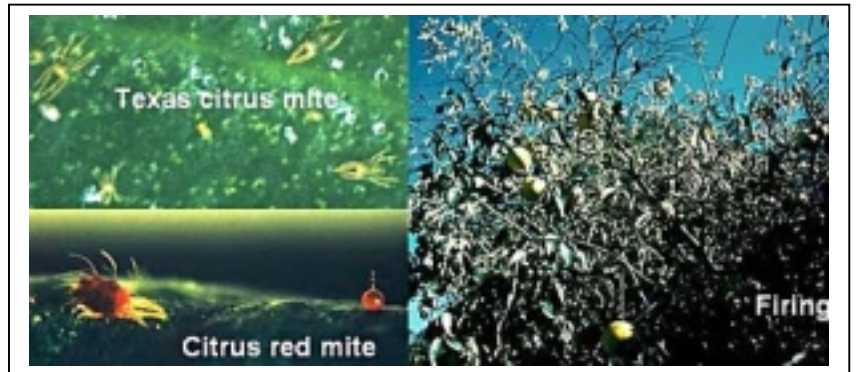
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Fixed Wing & Helicopter
P.O. Box 5100
Immokalee, FL 34143
Phone: 941 657 3217
Fax: 941 657 5558

Spider Mites

Spider mites occur on citrus throughout the year. Usually, they are more abundant in citrus groves between March through June.

They are found most commonly on the upper leaf surface along the mid-vein of recently mature leaves. As populations increase, they move to the fruit. Spider mites prefer low relative humidity (30-60%) and usually are not a problem under high humidity conditions between June and September. Spider mites can destroy leaf cells, reduce photosynthesis, and cause leaf drop.



Spider mites can be suppressed to low densities by predacious mites and insects. When the populations reach 5 or more spider mites per leaf, it would be advisable to apply a miticide. Control of spider mites in the spring is recommended by including a miticide in the postbloom spray application. Sampling methods and assessment of spider mite populations are outlined in the 2000 Florida citrus pest management guide. For example, the threshold is an average of 10 mites/leaf if 1 leaf from each quadrant of a tree is sampled from 2 areas (5 trees/area) in a 10-acre block. There are several miticides that can be used to control spider mites. However, mixing them with oil or copper may reduce their residual activities.

Petroleum oil at the rate of 5 gal/acre can be effective in suppressing mite population. For more details on sampling and threshold values as well as recommended miticides for spider mite control, get your 2001 Florida citrus pest management guide. Always read the product label prior to use.

Mark your calendar and plan to attend the two special seminars that will be held in June 2001

On June 26, 2001, **Dr. Tom Obreza**, Professor in Soil Chemistry at the University of Florida, and his team will be presenting valuable information on the benefits and concerns of using biosolids and poultry manure as nutrient sources for citrus production. They will discuss their findings relative to the N and P availability from biosolids and poultry manure applied to citrus. They will also talk about the supply and availability of materials as well as the regulatory aspects.

VERY IMPORTANT!!!

Enclosed information:

- Updated Information on Citrus Canker
- Farm Safety Day (including Registration & Sponsorship)

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 more severe on grapefruit, 'Pineapple' and 'Hamlin' oranges, and tangelos than 'Valencia', 'Temple', 'Murcott', tangerines, and tangerine hybrids. In southwest Florida, greasy spot has been very severe even on 'Valencia' orange and other citrus cultivars. 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 in 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. 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. Abound can be applied at any time to all citrus and provides effective control of the disease on leaves and fruit. Abound should not be applied more than once a year for greasy spot control. Addition of petroleum oil increases the efficacy of Enable and Abound. Always read the product label prior to use.



Don't miss the seminar on May 15 starting early at 9:00 AM.

Get an update and all the information you need on citrus canker and the citrus psyllid. Learn about the most efficient and economical way in managing resets in blocks where trees are declining from Tristeza or Blight.

- CITRUS WATER SUMMIT –

A Citrus Water Summit will be held at the Lake Alfred CREC on Wednesday, May 23, 2001. This is being organized by Dr. Brian Boman, Dr. Larry Parsons, and the Florida Citrus Production Extension Water Action Team. A preliminary program list of speakers and topics is enclosed in this newsletter. We will have presentations by officials from various state agencies, the executive directors of the 3 Water Management Districts, grower organizations, and a grower panel. Given the present drought situation, this Citrus Water Summit will provide timely information on important water issues. Enclosed, please find a registration form for this important citrus water summit. Registrations need to be sent to Jane Wilson by May 16, 2001 to receive a complimentary lunch. Those who do not register by May 16 may not receive a lunch. CEU credits will be available. For more information on this Summit and other water management related issues, feel free to contact

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E-commerce: Agriculture's newest Tool

XSAg.com has produced an informative and balanced Ag e-commerce seminar (~1 ½ hours) that has been used to successfully educate over a thousand producers and Ag educators. Upon completion of the E-commerce seminar the attendee will be able to:

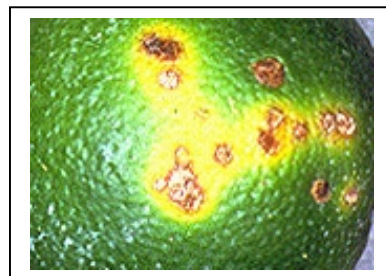
- A. Understand the fundamentals of e-commerce, e-commerce business models and why it makes sense in Ag.
- B. Identify the key benefits that a farm operation can derive from utilizing this new tool for buying inputs and selling outputs.
- C. Access the leading Ag e-commerce
- D. Understand how to trade on two-three e-commerce websites.
- E. Understand how farmers have overcome concerns about to using e-commerce on the farm using the latest research as a guide.

Attendees will also be introduced to financial opportunities, for themselves of their FFA, for helping to educate local producers on e-commerce using this curriculum. Do not miss the special seminar scheduled on 5 June at the Immokalee IFAS Center. For more information, contact Scott Peoples, Director of Marketing, at (919)-327-9511 or speoples@xsinc.com

Citrus canker

Florida's \$8 billion citrus industry is important to the State's and, therefore, residents' economic well being. An eradication program is being carried out in the State of Florida as a joint effort between the Florida Division of Plant Industry (DPI) and the U.S. Department of Agriculture and Plant Health Inspection Service (APHIS).

Citrus canker, caused by a bacterial pathogen *Xanthomonas axonopodis*, is a serious disease of most citrus varieties. The disease causes necrotic lesions on leaves, stems, and fruit. Severe infestation can cause defoliation, premature fruit drop, twig dieback, general tree decline, and very bad blemishes on fruit. The earliest symptoms on leaves appear as slightly raised tiny blister-like lesions. As the lesions age, they turn tan to brown and water soaked margin appears surrounded by a yellow halo. The center of the lesion becomes raised and corky. Lesions are usually visible on both sides of the leaf. Defoliation becomes a problem as the disease intensifies on the tree. Symptoms of bacterial citrus canker on twigs and fruit are similar and consisted of raised corky lesions surrounded by an oily or water-soaked margin. As the lesions on the fruit mature, they appear scablike or corky. The lesions on the leaves sometimes fall out, leaving round holes.



Citrus canker was first introduced in Florida in 1910 through citrus trees coming from Japan. It was eradicated in 1927.

In June 1986, citrus canker was detected in residential citrus in Hillsborough, Pinellas, Sarasota and Manatee counties and was also found in commercial citrus groves in Manatee County. This second eradication program concluded with the last detection in January 1992. The official declaration of eradication was made 2 years later. In late September 1995, citrus canker was discovered for the third time in Florida residential area near Miami International Airport. Even with an extensive eradication effort, the disease has spread northward from Dade into Broward County. In May 1997, citrus canker was rediscovered in Manatee County in both commercial groves and residential citrus. In June 1998, citrus canker was discovered in a commercial grapefruit grove in the Immokalee area in Collier County. In February 1999, citrus canker was found in a commercial citrus grove in Hendry County. In March 2000, citrus canker was found in a residential area in Palm Beach County. Although eradication efforts have been very extensive to eradicate the disease in Hendry and Collier counties, citrus canker kept spreading in the groves where it was found and was detected in several others groves and residential areas. Genetic fingerprinting of the isolate of citrus canker in Collier, Hendry, and Palm Beach counties matches that of Miami and was different from that in Manatee County.

Citrus canker is highly contagious and can be spread rapidly by wind-driven rain, unusual storm events such as tornadoes and tropical storms, flooding, equipment, insects, and

human movement within groves. Overhead irrigation may also play a role in spreading the bacteria. Movement of infected or exposed trees, seedlings, propagative material, and fruit is the primary means of spreading the canker pathogen over long distances. Contaminated clothing, tools, ladders, containers and fruit boxes, and other items associated with harvesting and postharvest handling of fruit are also potential sources of infection.

Citrus canker is most severe on grapefruit, Key limes, trifoliate orange and their hybrids. Calamondin, kumquat, and citron are considered resistant. To the present time, there is no cure for citrus canker. The only way to stop it is to uproot the infected and exposed trees within a radius of 125 ft up to 1900 ft and burn them. Quarantine areas are extended at least one mile in all directions from any known infected tree. No citrus material should move into or out of the quarantine area. Sanitation is very important. Quaternary ammonium disinfectants are available for use on equipment, clothing, and even bare skin.



If someone suspects they have citrus canker, they should call the Division of Plant Industry. In Lee County, call 332 6913. In Collier County call 658 3684. Elsewhere in the state, call the canker hotline at 1 800 850 3781 or 1 800 293 3101. Citrus growers, production managers, and homeowners should not collect samples from suspected trees and take them to anyplace including county extension offices because of the risk of spreading more the disease. Do not destroy infected trees by yourself without reporting to Federal and State officials or inspectors. Allow them into your grove or yard to check your citrus trees. Give them permission to remove infected and exposed trees.

See enclosed sheets on citrus canker in Florida, products approved for decontamination and recommendations to reduce the spread of citrus canker by DPI.

For more information on citrus canker visit the USDA APHIS Cooperative State-Federal Citrus Canker Eradication Program Web Sites at

<http://www.aphis.usda.gov/oa/ccanker.html>

<http://doacs.state.fl.us/~pi/canker/message.htm>

<http://doacs.state.fl.us/~pi/canker/index.htm> or stop by the Extension Office to pick up copies of articles dealing with citrus canker including information on:

- State approved guardhouses for grove entrances,
- Personnel, equipment, and vehicle decontaminants approved by the State for citrus canker eradication,
- Rules of the Department of Agriculture and Consumer Services, Division of Plant Industry on citrus canker eradication,
- Suggested precautions to reduce the risk of spread of citrus canker in groves and nurseries, and other publications.

Citrus Canker Decontamination Products

Decontamination/disinfection procedures are crucial to reduce the risk of spreading citrus canker and increase the probability of its eradication in Florida.

I. Hands and Clothing:

1. GX 1027® Antimicrobial Soap: Galloway Chemical Division, Clearwater, FL. Diluted 1:54 with water, 1 tbs. per use. Use normal hand washing for 20 to 30 seconds, paying special attention to fingernails and between fingers, followed by water rinse. If arms are also washed, more soap and water should be used. Avoid contact with eyes. Gallex is also approved for use on clothing being worn, with no rinse required.

2. Hibiclens®: Stuart Pharmaceuticals
One tsp. on wet hands per use. Use normal hand washing action for 20 to 30 seconds, paying special attention to fingernails and between fingers, followed by water rinse. If arms are also washed, more soap and water should be used. Avoid contact with eyes.

3. Hibistat®: Stuart Pharmaceuticals
Five ml. per use. Rub onto hands until dry (about 15 seconds).

4. Sani Clean Hand Soap®: H. Wilson Manufacturing Co.
Five ml. soap and 15 ml. of water per use.

II. Vehicles, Equipment, and Small Tools

A. Dual quaternary ammonium

1. Gallex 900® Galloway Chemical Division
(GX 900®) Clearwater, FL
EPA No. 1839-81-22061
Fax: (727) 536-1804

B. Multiquaternary ammonium

1. Process NPD® Calgon Vestal Laboratories
EPA No. 1043-90 St. Louis, MO
2. Citra-Solv® Flo-Tec, Inc.
EPA No. 10324-72-72160 Largo, FL
Phone: (727) 531-8796

C. Hot Water and Detergent

Wash thoroughly with a hot water and detergent solution, under high pressure, at a minimum of 160°F. Wet all surfaces to the point of runoff.

Get your copy of the 2001 Florida Citrus Pest Management Guide.
It is available at the Hendry County Extension Office and the Immokalee IFAS Center.

III. Packinghouse

A. Sodium-o-phenylphenate (SOPP)

Wash Solutions:

1. SOPP concentrations of 1.86% to 2% required.
2. SOPP formulations may be either soap or non-soap.

Wash Procedures:

1. The SOPP can be applied by drench, spray, or foam methods. The use of foam may require scrub brushes to assure total wetting of fruit surface.
2. All methods of treatment require the following exposure time after fruit becomes totally wet as described in chlorine treatment procedures.
 - a. SOPP/soap solutions - 45 seconds.
 - b. SOPP/non-soap solutions - 1 minute.
3. To prevent fruit damage, the solution pH would be maintained with a 11.5-12.2 range.
4. Fruit should be thoroughly rinsed. It is understood that residues of SOPP of less than 10 ppm will be left only in cracks and crevices of fruit.

B. Sodium Hypochlorite

Wash Solutions:

- 1) Water should be maintained within a range of 6 to 7.5 pH.
- 2) Available or free chlorine concentration should be mixed to 200 ppm (mg/L) and maintained within a range of 150 ppm to 250 ppm.
- 3) It is permissible to add 0.05% (v/v) nonionic surfactant to Sodium Hypochlorite wash solutions.
- 4) Sodium Hypochlorite levels above 500 ppm may cause fruit damage.
- 5) Change the wash water/Sodium Hypochlorite solution daily or more frequently, if necessary. Dirty water reduces free/available.

Wash Procedures:

- 1) Fruit can be washed in a tank that allows the fruit to remain in the wash solution for a period of two (2) minutes.

Movement of the fruit through the tank must be controlled to assure that all fruit receives the full two-minute treatment.
- 2) A combination of spray nozzles and powered roller-type brushes arranged to allow for thorough wetting with the wash solution and scrubbing with the roller brushes is acceptable, provided the fruit remains thoroughly wet with the water Sodium Hypochlorite solution for two minutes.

General Recommendations

1. Avoid copper sprays near infested areas. Copper only suppresses infection rather than eradicating the disease, thereby making canker detection more difficult for inspectors.
2. Do not collect samples of citrus for canker diagnosis. Note the location of the suspect plants, map the location, and immediately call the toll free number 1 800 850 3781 or the Immokalee office at 941 658 3684.

RECOMMENDATIONS TO REDUCE THE SPREAD OF CITRUS CANKER

Groves and Nurseries

1. Whenever possible lock the gates of the property and restrict access at all times.
2. Before entering groves or nurseries, equipment should be first cleaned of all plant material, debris and soil and then disinfected with approved decontamination products.
3. Prior to entering or leaving groves, blocks and nurseries, all workers should disinfect hands and shoes with antimicrobial soap or other approved disinfectants.
4. All workers including fruit picking personnel should wear freshly laundered clothes each day.
5. All grove and nursery traffic including personal vehicles, equipment and visitors should be limited as much as possible.
6. Exchange of personnel, vehicles and equipment between groves, blocks and nurseries should be limited as much as possible.
7. It is very important to require grove service contractors to practice stringent decontamination and sanitation procedures.
8. Restrict access of all personnel, vehicles, and equipment and movement in groves or nurseries when foliage is wet with rain or dew. Do not harvest fruit before the trees dry.
9. Restrict irrigation to nighttime hours to reduce worker exposure to wet foliage.
10. Before entering a grove, all harvesting equipment including trucks, trailers, tractors, "goats", ladders, tubs, boxes, picking bags and gloves must be decontaminated.
11. Do not collect canker specimens. Flag adjacent trees, map the location and immediately contact the Division of Plant Industry at 1 800 850 3781.

Packinghouses and Processing Plants

1. Clean all debris including leaves, twigs and fruit from all fruit hauling equipment and containers. All debris should be burned or disposed of at the present location in a manner that will not pose any risk.
2. Avoid dumping culled fruit and debris in unauthorized areas especially near groves and nurseries.
3. Tarping for all fruit transport trucks and trailers should be required to eliminate escape of debris.

Spring Irrigation: Crucial in a Time of Drought

By Dr. Larry Parsons

The drought of 2000-2001 continues and there is no let-up in sight. The Climate Prediction Center has predicted that rainfall through May 2001 will be 10 to 20% below normal and temperatures will be as much as 5% above normal. The year 2000 was the driest year on record in Florida, and rainfall during the past two years has been more than 24 inches below normal in some regions. Rainfall in January-February 2001 was less than 1/3 of normal. Stream flows and lake levels are near record lows. On the [Keetch-Byram Drought Index](#), which has a maximum drought value of 800, parts of central Florida were close to 700 during most of March. Rains in late March helped, but the deficit is still severe. During the last four years, drought-related citrus crop losses and resulting declines in sales have cost \$82 million. Wildfires have become common, and fire activity since February has been unprecedented.

Irrigation is one of the most important things for a grower to focus on in the spring because this is the most critical time for citrus in terms of water stress. Flowering and young fruit set are strongly influenced by water stress. Studies in Spain with Clementine mandarins showed that reduced irrigation in the spring caused the greatest reduction in yield. Even relatively moderate stress in the spring increased June drop which reduced total fruit number per tree.

This current Florida drought has clearly emphasized the importance of coverage by the irrigation system. Dr. Robert Koo demonstrated the importance of coverage in studies using drip, microsprinkler, and overhead sprinklers in the 1970s and 80s. Trees with less irrigation coverage were more stressed and had noticeably greater young fruit drop. Because of the greater coverage, trees with 2 microsprinklers per tree had 12% more yield than those with only 2 drippers per tree. Our recent studies have shown that microsprinklers that cover too small an area under the tree cannot meet tree demands, no matter how much water is applied. Most of the time, roots outside the irrigated zone can extract some water from the rain-fed non-irrigated zone. Because there has been so little rain, there is essentially no available water to those roots from that non-irrigated zone. Irrigation is normally a supplement to rainfall in Florida, and rain is the primary source of water to meet tree needs. However, in this drought, the irrigation system becomes the primary supplier of water until the rains return.

In a mature grove, roots spread throughout the entire grove floor. With many common microsprinkler spray patterns, only a fraction of the total roots in the grove are irrigated. When there is essentially no contribution of water from the non-irrigated zone, it is tempting to run the system for a long time to make up for the lack of rainfall. On the ridge, this only drives the water deeper into the soil. Irrigating for more than 8 hours will move water and potentially some fertilizer below the root zone and not benefit the tree. Since most of the roots are in the top 2 to 3 feet, it makes sense to keep this area wet and not drive water much below it. Tensiometers or other soil water measuring devices set at 6, 12 and 24-inch depths can determine depth of wetting and help guide irrigation scheduling. A minimum of two 6-inch and two 12-inch tensiometers per irrigation block seems to work well. Additional tensiometers at depths of 18 or 24 inches are useful on the ridge to determine depth of water movement.

Based on research with overhead irrigation which wetted the entire land area, Dr. Koo recommended irrigating at 33% depletion of available water in the spring and 66% depletion in the fall and winter. Because microsprinklers wet only a portion of the land area, it has been recommended that values of 25% and 50% depletion, respectively, be used when using microsprinklers. On the ridge, this would mean irrigating at tensiometer settings of 10 cbar in the spring and 15 cbar in the winter. On common flatwoods soils which usually hold a little more water than ridge soils, this would mean irrigating at around 15 cbar in the spring and 30 cbar in the winter.

It is possible that even daily watering with a small spray pattern cannot meet the needs of mature trees during drought periods. In that case, the grower needs to change the emitter to increase the spray diameter. It is best to cover the entire area under the canopy and possibly even some of the area beyond the canopy. Greater coverage will wet more roots and provide more water for the trees. By having a large wetted volume, the tree's water needs will more likely be met during prolonged dry periods.

Summer rains will hopefully make up for some of this prolonged spring water deficit. This drought emphasizes the importance of a well-maintained irrigation system with sufficient coverage to meet the needs of the trees.

Citrus Canker in Florida through 23 February 2001

Florida is currently fighting Asian strain bacterial citrus canker in seven counties: Dade & Broward, Palm Beach, Manatee, Hillsborough, Collier and Hendry. In all areas where canker is present, diseased trees are confirmed positively infected by on-site plant pathologists. The movement of citrus plant material from quarantine areas is prohibited, though citrus fruit may move under certain conditions when certified by the Department. All positive trees and exposed trees within 1900 feet are destroyed, as there exists no cure or effective treatment for canker. In January 2000, the CCEP began 1900-ft. removal of exposed trees, which captures 95% of disease spread from infected trees and is based on a two-year epidemiological study in Dade & Broward counties. On 11 Feb. 2000, Governor Bush

declared a state of emergency for canker-infected counties and allocated additional funding for eradication; funds have also been allocated for a statewide citrus canker survey which is underway. Mandatory statewide decontamination procedures began 1 April 2000.

TOTAL trees destroyed to date statewide: residential 597,497 + grove 1,239,918 = 1,837,415

DADE & BROWARD Counties – Quarantine area: app. 1000 sq. miles

Citrus canker was detected in the Westchester/Sweetwater areas of Dade County in October 1995. It has now spread into 372 sections in

Dade and 236 in Broward. Since October 1995, control action has been taken on app. 222,897 properties. A total of 589,584 infected

and exposed trees in 608 sections and 6 government lots in Dade/Broward/Palm Beach counties have been removed to date.

S. Dade Commercial Lime Find On 5 January 2000, canker was found in commercial lime groves in Florida City. A total of 304,068

grove trees on 2280 acres have been pushed and burned to date.

PALM BEACH County – No quarantine area

Citrus canker has been detected on 60 residential properties across 9 sections since the first find in November 1999. CCEP and independent research scientists are investigating why the majority of infected trees have been key limes; a variant isolate of A-strain canker which is strongly host-specific is expected. A-strain canker has been confirmed on only 12 properties out of the 60. Survey is ongoing and 2434 trees have been destroyed to date, though control action will remain limited until a conclusive determination is made about the strain.

MANATEE County – Quarantine areas: Palmetto, 95 sq. miles & Duette, 41 sq. miles

Citrus canker was detected in May 1997 in two groves off I-75 near Palmetto. 850 acres have been found positive for canker: 738

commercial and 112 abandoned acres. 95,151 grove trees on 1285 infected acres, and 3043 dooryard trees, have been destroyed.

Duette Area Find In July 1999, 38 positive trees were found about 4 mi. west of Duette and burned in place; seven exposed acres were

also destroyed. Additional positive and exposed trees were detected and destroyed in September and December 1999 and February 2000.

HILLSBOROUGH County – Quarantine area: 20 sq. miles

Citrus canker was detected in November 1999 in the Sun City Center area of S. Hillsborough County. Survey revealed a total of 56

positive and 46 exposed trees on 27 properties across four square miles. Control action on positive and exposed trees is complete—2147

dooryard trees have been destroyed on 947 residential properties. In December 1999, 8500 grove trees on 102 high-risk abandoned acres

near the county line were destroyed; 1766 additional grove trees were destroyed in August 2000 for a total of 10,266 trees on 117 acres.

COLLIER County – Quarantine areas: Sunniland, 113 sq. miles; Golden Gate City, 9.5 sq. miles

In June 1998 citrus canker was detected in the Indian Lake Grove, 12 miles SE of Immokalee. Since then, 1274 (?) acres have been or are being destroyed. To date, 10 residences in Golden Gate City have infected trees—27 positive and 1635 exposed trees have been destroyed onsite since the first find in April 2000; 1900' control action is complete. Also, three residences at Golden Gate Estates have had 9 positive and 45 exposed trees destroyed. In October 2000, 10 positive trees were destroyed in a grove just north of previously-positive Sunniland grove; 142-acre control action is complete. In January 2001, 32 positive trees were found in Ranch One; also, two positive grapefruit were detected in the Collier Company grove—1900' control action on both sites is almost complete.

HENDRY County – Quarantine areas: Siboney, 95 sq. miles; Big Cypress Seminole, 18 sq. miles; Montura Ranch, 16 sq. miles; Star-Glo, 30 sq. miles (portions in N. Collier Co.)

In February 1999 canker was found in the Siboney Grove; the entire 622-acre grove has been destroyed. Since then, approximately 930 acres have been pushed on five additional infected groves on the east and south outer fringe of the SW Florida citrus area. To date, seven residences at Montura Ranch Estates have infected trees—39 positive and 938 exposed trees have been destroyed. In late July/August 2000, 132 positive trees were burned in place in a grove just west of the Star-Glo quarantine area; 275 surrounding acres have been destroyed. In October 2000, 33 positive trees were detected in a previously-positive grove within the Star-Glo quarantine area; 594 acres are being destroyed. In December 2000, 2587 positive trees were confirmed in a 507-acre grove just east of the Siboney quarantine area; control action is nearly complete. Also in December, two positive dooryard trees and 18 exposed trees at Siboney Estates were destroyed.

*** Immokalee CCEP Office combined total for Collier and Hendry counties: 833,940 grove trees removed on app. 3350**

commercial acres (inc. 360 abandoned acres) and 2713 residential trees have been cut to date.

DNA ANALYSIS – Current scientific research indicates that all citrus canker outbreaks in Florida (which have received molecular analysis) are genetically related to the Dade Co. infestation, except for infestations in Palmetto (Manatee Co.) and parts of Sun City Center (Hillsborough Co.), which are an apparent reoccurrence of the 1986-94 outbreak.

PRODUCTS APPROVED FOR DECONTAMINATION

In order to prevent the spread of citrus canker disease, it is essential that personnel and equipment working near or contacting any citrus plants be decontaminated both upon entry and departure of the area, regardless of whether an infestation has been proven to exist.

DECONTAMINATION OF PERSONNEL:

Risks of acquiring and dispersing citrus canker inoculum are greatest when diseased citrus plant material and surrounding vegetation are wet. It is, therefore, advisable to avoid any unnecessary contact. All workers should disinfect hands, arms and any other parts of the body that have contacted citrus and surrounding vegetation, plus any clothing, gloves, shoes and small personal items (pen, hand lens, glasses, pocketknife, etc.) that have come in contact with risky plant material, using one of the following prescribed products in accordance with label directions. (Larger equipment should be treated with the products described in the EQUIPMENT section below.) It is important that the users of these products **READ AND FOLLOW THE LABEL DIRECTIONS**. Some products are for skin use only, requiring a follow-up water rinse, or soap and water hand-washing **BEFORE** use of the product. Others are one-step no-rinse products, and can also be applied to clothing while being worn. Allow the no-rinse products to air-dry. For hands, use normal hand-washing action for 20 to 30 seconds, paying special attention to fingernails and areas between fingers. Products marked with "*" are in a formulation that can be applied to clothing and shoes using a spray dispenser. With all products, avoid contact with eyes, and observe product safety precautions given by the manufacturer.

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|--|--|
| (1) *GX-1027 Antimicrobial Soap | Galloway Chemical (800) 445-1143 |
| (2) Hibiclens; Hibistat | AstraZeneca (800) 842-9920 |
| (3) *Canker Guard | Flo Tech. Inc. (800) 335-6832 |
| (4) *Csan 154 QT Soap | Bell Chem Corporation (407) 339-2355 |
| (5) EcoCare 250, EcoCare 260, EcoCare 350, *EcoCare 360 | Ecolab (651) 293-2848 |
| (6) *Triple Crown Super Healer; *Medi-Kwik AntiMicrobial & Fungicidal Skin Cleanser | Envirosafe, Inc. (800) 227-9744 |
| (7) AgriCure; Pure & Clean Antibacterial Handwash with <i>Germsafe</i> | International Laboratory Technology Corp. (954) 893-1118 |
| (8) *QHS Quaternary Hand Sanitizer | Chemstar Products, Inc. (813) 978-8648 |
| (9) FS Antimicrobial Hand Cleaner; FS E-2 Sanitizing Hand Soap; Acclaim Antibacterial Liquid Hand Soap | ZEP Manufacturing Co. (800) 313-8439 |
| (10) *C-Soap | Genesis Technologies (800) 825-5810 |

DECONTAMINATION OF EQUIPMENT:

Equipment should be regularly pressure-washed with detergent and inspected for freedom from plant debris and soil residue, then further disinfected with one of the following quaternary ammonium chloride compounds (QAC) listed below. The undercarriage of the equipment should also be cleaned and disinfected. Since the following QAC decontamination chemicals are not labeled for use on fruit or personnel, it is recommended that care be taken to avoid contact with exposed fruit and personnel when applying these sprays.

- (1) **Quaternary Ammonium Chloride 'QAC'** The use of these compounds is recommended for vehicles, tools and equipment. **Do not use on personnel.** Apply at 2000 ppm (0.2%) QAC solution to all surfaces. The following QAC products are approved for use in decontamination of equipment:

Section 3 registrations:

- | | | |
|---------------------------------|------------------------------|--|
| (1) CITRA-SOLV | EPA Reg. No. 10324-72-72160. | FLO-TEC Inc. (800) 335-6832 |
| (2) CS-170-C | EPA Reg. No. 10324-72-44637. | Chemical Systems of Florida, Inc. (407) 886-2329 |
| (3) Canquat 110c | EPA Reg. No. 10324-72-33354. | Fresh Mark Corporation (352) 429-4171 |
| (4) BELQUAT 612 | EPA Reg. No. 10324-72-67829. | Bell Chem Corporation (407) 339-2355 |
| (5) SAN-O-256 | EPA Reg. No. 10324-72-402. | Hill Manufacturing Co. (800) 445-5123 |
| (6) ZEP X-1400 | EPA Reg. No. 10324-72-1270. | ZEP Manufacturing Co. (800) 313-8439 |
| (7) HC 217 | EPA Reg. No. 10324-72-09365. | Holland Chemical International (800) 282-7556 |
| (8) CITRO-GARD | EPA Reg. No. 10324-72-1677. | Ecolab Inc. (651) 293-2848 |
| (9) DECCOSAN 321 | EPA Reg. No. 10324-72-2792. | Elf Atochem North America, Inc. (818) 359-8240 |
| (10) CPF QUAT | EPA Reg. No. 10324-72-9367. | Theochem Laboratories, Inc. (800) 237-2591 |
| (11) HDQ-22 High Dilution Quat | EPA Reg. No. 1839-167-70671. | Chemstar Products, Inc. (813) 978-8648 |
| (12) Canker Control Concentrate | EPA Reg. No. 1839-167-22061. | Galloway Chemical Division (800) 445-1143 |
| (13) C-Quat | EPA Reg. No. 10324-72-73439. | Genesis Technologies (800) 825-5810 |

ALTERNATE METHODS FOR DECONTAMINATION OF EQUIPMENT:

(1) **Household Bleach (Chlorine)** A solution for decontamination of tools and equipment can be made using household bleach. Apply 200 ppm to all surfaces to the point of run-off and maintain a pH of 6.0 to 7.5. Most solutions made with 1 ounce of bleach to 1 gallon of water meet this criteria. This solution loses its strength in approximately 2 to 3 days during hot weather months.

(2) **Hot Water and Detergent** Wash thoroughly with a hot water and detergent solution, under high pressure, at a minimum of 160 degrees F, covering all surfaces to the point of runoff.

(3) **Steam** Apply steam, with minimum temperature of 160 degrees F, to all surfaces. This temperature must be maintained at the point of contact.

Note: It has been proven to be extremely difficult to maintain the 160 degree F temperature in actual use. Applying steam with a combination of dry heat in an enclosed chamber has been successful.

(revised 12 February 2001)

Citrus Water Summit - May 23, 2001

University of Florida, Institute of Food and Agricultural Sciences

8:50 am - 4:30 pm, Ben Hill Griffin Auditorium, Citrus REC, Lake Alfred

Preliminary Agenda Topics & Speakers

A forum for the Florida citrus industry to discuss water-related concerns

Morning Session moderated by Harold Browning, IFAS Citrus Research and Extension Center, Lake Alfred

- Comprehensive Everglades Restoration Plan - How Will it Affect Citrus?..... Dave Unsell, SFWMD
- Lake Okeechobee Restoration Project..... Chuck Aller, DACS
- TMDLs and DEP-s role in citrus water issues Jerry Brooks, DEP
- DACS role in citrus BMPs and water issues..... Rich Budell, DACS
- Florida Legislature-s role in citrus water issues Rep. Lindsay Harrington, Chair Florida House Natural Resources Committee
- 2001 Legislative Update on citrus water issues Cathy Vogel, Florida Water Council
- Introduction to *Water and Florida Citrus*..... Brian Boman, UF/IFAS

Afternoon Session - moderated by Rich Budell, FDACS, Governor-s Office of Ag Water Policy

- Indian River BMP development Stan Carter, McArthur Farms
- WMD issues and drought updates Henry Dean, SJRWMD
Col. Frank Finch, SFWMD
Sonny Vergara, SWFWMD
- Panel discussion on water and environmental concerns
for SJRWMD, SWFWMD, and SFWMD Col. Frank Finch, Henry Dean, Sonny Vergara
- Conservation Plans & Nutrient Management Plans..... Tim Hafner, USDA-NRCS
- What do water and environmental policies mean to citrus growers..... Mary Ann Gosa, Florida Farm Bureau
- Industry response to water and environmental
concerns - panel discussion Doug Bournique, Hugh English, Bill Kerr, Ken Keck,
Norman Todd, J. D. Alexander

This Citrus Water Summit is sponsored by The University of Florida and IFAS. Please register to attend by May 16, 2001 to receive a complimentary lunch. Those who do not register by May 16 may not receive a lunch. CEU credits will be available for session attendees.

Send or telephone the registration information below to Ms. Jane Wilson, University of Florida, IFAS, Citrus REC, 700 Experiment Station Road, Lake Alfred, FL 33850-2299 - phone: 863-956-1151, ext. 309.

Name_____

Organization_____

Address_____

City_____ State_____ Zip_____

Phone_ E-mail_

Eleventh Annual Farm Safety Day

Saturday, June 2, 2001
Southwest Florida and Education Center
Highway 29, Immokalee, FL

SCHEDULE:

7:45 - 8:10	Check In and Coffee
8:10 - 9:00	Session 1, 2, 3, 4 (Begin Sessions By Group No.)
9:00 - 9:10	Break (Change Sessions)
9:10 - 10:00	Session 1, 2, 3, 4
10:00 - 10:15	Break (Change Sessions)
10:15 - 11:05	Session 1, 2, 3, 4
11:05 - 11:15	Break (Change Sessions)
11:15 - 12:05	Session 1, 2, 3, 4
12:05 - 12:40	Lunch
12:40 - 2:30	Rodeo - Exhibits & Awards Presentation

CONCURRENT SESSIONS:

1. Symptoms of Pesticide Poisoning and First-Aid for Farm Workers
Dr Paul Midney
2. Living and Working with Snakes and Other Venomous Critters in SW Florida
Ms Addy Chadid
3. Personal Protection Equipment - Why, How and When
Mr Cesar Asuje
4. Fire Safety on the Farm - Preventing Wildfires
TBA

Program will offer 2 CEUs for pesticide license renewal.

Eleventh Annual Farm Safety Day

Saturday, June 2, 2001

Committee Assignment

Mongi Zekri

Overall Coordinator

Treasurer, Program evaluation

*Assisting **Pam Roberts**

Food service

Gene McAvoy

Morning Program Coordinator

*Assisting **Julie Carson** (Hats, badges, trophies, plaque engraving)

Julie Carson/Buddy Walker (Audio & visual aid equipment)

Cesar Asuaje/Fritz Roka (Program assistance)

Ed Holcomb

Afternoon Program Coordinator

1. **Steve Taylor** Rodeo Course Design/Set-up,
Outdoors facilities, Parking

2. **Fritz Roka** Rodeo Rules, Judges & Judging

*Assisting **Shannon Ruby**

Dana Rice

3. **TBA** Rodeo Master of Ceremonies (Awards & sponsor recognition)

Bob Rouse/Barbara Hyman/Mickey Pena

Registration Coordinators

(Registration & program materials,
duplication, distribution & mail out)

*Assisting **Shannon Ruby** Registration the day of the meeting

Dana Rice

Julie Carson

Dallas Townsend/M. Zekri

Fund Raising Coordinators

AN IMPORTANT MESSAGE TO EMPLOYERS

Certificates

The 2001 Southwest Florida Farm Safety Day is almost here. Farm Safety Day is an educational event designed to emphasize the importance of farm/equipment safety. Each participant is presented with a certificate of attendance and **the employer will be provided with a certificate of training that can be placed into the employee's file.**

Registration Info

The deadline for registration is May 18th. It is the employer's responsibility to assure that the employee is present at 7:45 a.m. on June 2nd to receive their nametag. Upon arrival each participant will check in at the registration table and receive a packet containing their name tag, instructions (in both English and Spanish) session handouts, an evaluation form, lunch ticket, rodeo cap and pencil. They will be directed to their respective course sessions.

In the event of a substitution, **the substitute employee must let the registration desk know** the name of the person they are replacing. A new name tag with the same color coding will be issued.

Language Preference

The courses will be marked by color coded signs. The signs will rotate throughout the morning session and the employee will follow the color sign that matches their nametag. Courses will be offered in both Spanish and English so it is very **important to either check an "E" for English or an "S" for Spanish on the registration form.**

Tractor Rodeo

Participation in the rodeo will be on a first come/first serve basis and a driver must be designated. Only one driver per farm will be allowed. You must have your participator registered prior to the day of the rodeo to insure your company's participation. If company checks are issued from somewhere other than your local office, please contact Barbara and arrangements will be made to proceed with pre-registration.

If there are any questions, please feel free to contact **Barbara Hyman at 941 658 3462.**