



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. 10

October 2003

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



UPCOMING EVENTS

Seminars/workshops at the Immokalee IFAS Center

Thursday, October 9, 2003, 9:00 AM – 12:00 Noon

Citrus canker training/certification and eradication program – Workshop

Speakers: Holly Chamberlain, Richard Gaskalla, Andy LaVigne, Tim Schubert, Tim Gottwald, Greg Carlton, Tim Riley, Pete Timmer and others

3 CEUs for Pesticide License Renewal

2 CEUs for Certified Crop Advisors (CCAs)

For more information or location near you, see attached sheet

Tuesday, October 21, 2003, 10:00 AM – 12:00 Noon

Use of plant growth regulators to enhance citrus cropping

Speakers: Drs. Ed Stover and Craig Campbell

1.5 CEUs for Pesticide License Renewal

2 CEUs for Certified Crop Advisors

Following the seminar, we are planning a free BBQ lunch (Compliments of Valent USA) for only who call 863 441 1200 no later than Monday, 20 Oct 2003.

Tuesday, November 18, 2003, 10:00 AM – 12:00 Noon

Water supply issues for citrus growers, and Can the impoundments in citrus groves be used for irrigation water supply?

Speakers: Hugh English and Dr. Sanjay Shukla

2 CEUs for Certified Crop Advisors

Tuesday, December 16, 2003, 10:00 AM – 12:00 Noon

Sensitivity of Flatwoods citrus to phosphorus and potassium, and How to adjust fertilizer programs based on leaf and soil analysis?

Speaker: Drs. Tom Obreza and Andree-Anne Couillard

2 CEUs for Certified Crop Advisors

Sponsor: The Scotts Company

**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**

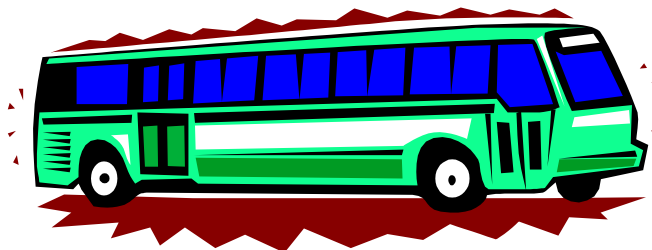
Nutrient Management for Optimum Citrus Tree Growth and Yield - Short Course

October 29, 2003, 8:30 AM – 4:00 PM

Lake Alfred CREC ([Brochure was enclosed last month](#))

For more information, call Dr. Stephen Futch at 863 956 1151

HENDRY COUNTY EXTENSION AG TOUR



Date: Saturday, 6 December 2003

For more information, call Inez at 863 674 4092

Wednesday, January 14, 2004, 9:00 AM – 4:00 PM,

Hendry County Extension Office, LaBelle

Workshop on scouting for pests and diseases

Speakers: Drs. Pete Timmer, Steven Rogers, and Phil Stansly

6 CEUs for Pesticide License Renewal, 6 CEUs for Certified Crop Advisors

Sponsor: Robert Gregg, Syngenta

Indian River Citrus Seminar

January 27–28, 2004

For more information, see enclosed sheet entitled “A New Event For Citrus Growers!”

INTERNATIONAL SOCIETY OF CITRICULTURE

10th International Citrus Congress

February 15-20, 2004, Agadir, Morocco

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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Robert Murray
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787 Overiver Drive
North Fort Myers, FL 33903
Phone: 800 457 0807
Fax: 239 995 0691

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Citrus Hedging, Inc.
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LaBelle, FL 33975
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Fax: 863 675 2104

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11100 Lakeland Circle
Fort Myers, FL 33913
Phone: 239 561 2812
Fax: 239 561 6985
Mobile: 239 707 1603 AGNET #6652

CITRUS ROOTSTOCKS

Rootstock selection is of major importance to the success of a citrus planting because the rootstock chosen will become the root system of the budded tree. The root system is responsible for absorption of water and nutrients, adapting the scion to particular soil conditions, and providing tolerance to some diseases and disorders. Many horticultural characteristics are influenced by the rootstock including tree vigor and size, fruit yield, fruit size, maturity date, and fruit quality.

Since there is no perfect rootstock, choice of rootstocks should be mainly based on the most important limiting factor to production in a particular area. Volk is well adapted to a wide range of soil pHs and is tolerant to citrus tristeza, but is sensitive to cold weather, blight and Phytophthora. Since southwest Florida is not considered a cold-winter area, probably soil conditions is the first consideration in rootstock selection.

Cultivar and intended use of the crop (fresh or processing) are also important for rootstock selection. Cleopatra mandarin is well suited for use with tangerines, Temple, and tangerine hybrids. Cleo is not widely used for grapefruit and sweet oranges, particularly Valencia. Sweet orange and grapefruit cultivars on Cleo generally produce small fruit and are not precocious. Low yield results from poor fruit set and size and fruit splitting. After 15 years of age, trees on Cleo can decline significantly due to citrus blight. Scions on Cleo are as cold hardy as those on sour orange or Swingle citrumelo and are most productive on heavier soils. Cleo is relatively tolerant to salinity and moderately tolerant to high pH or calcareous soils. Sun Chu Sha mandarin seems to be better than Cleo. It appears to be tolerant to citrus tristeza, Phytophthora, blight, and calcareous soils. Smooth Flat Seville has some degree of citrus tristeza tolerance. Trees on Smooth Flat Seville are moderately tolerant to calcareous soils, but their yield and juice quality are lower than trees on sour orange.

Rootstocks that are drought tolerant such as rough lemon and Volk and planted on deep sandy soils impart high vigor to the scion, induce high yield, but produce fruit relatively poor in total soluble solids and acids. Tangerine fruit from trees grown on vigorous rootstocks tends to be puffy, hold poorly on the tree, and have high incidence of granulation. However, grapefruit and sweet orange on Carrizo citrange and Swingle citrumelo rootstocks typically produce high quality fruit. Trees on Carrizo grow well on sandy and sandy-loam soils, but grow poorly on calcareous or high pH soils. Carrizo is moderately sensitive to Phytophthora and tree losses due to blight have been high in Flatwoods areas. However, sweet oranges budded on Carrizo have been among the most profitable combinations over the long term in Florida.

Swingle citrumelo is the most widely propagated rootstock in Florida. Scion cultivars budded on Swingle grow well on sandy and loamy soils, but grow poorly on clays, high pH or calcareous soils and in poorly drained areas. Trees on Swingle are very productive at high densities. Swingle is tolerant to Phytophthora and blight. Swingle is potentially one of the good all-purpose rootstocks for grapefruit and sweet oranges. However, it is advisable not to bud 'Roble' and 'Murcott' on Swingle.

Ranking of Citrus Rootstocks

| <u>Rootstock</u> | <u>Vigor</u> | <u>Yield</u> | <u>Juice quality</u> | <u>Phytophthora</u> | <u>Calcareous soil</u> | <u>Blight</u> | <u>Tristeza</u> |
|------------------|--------------|--------------|----------------------|---------------------|------------------------|---------------|-----------------|
| Volk | 1* | 1 | 3 | 2.5 | 1 | 3 | 1 |
| Swingle | 2 | 2 | 1.5 | 1 | 4 | 1 | 1 |
| Carrizo | 1 | 1 | 1.5 | 2 | 3 | 2.5 | 1 |
| Cleo | 1 | 2 | 1.5 | 3 | 2 | 2.5 | 1 |
| Sun C Sha | 1 | 2 | 1.5 | 2.5 | 2 | 2 | 1 |
| S F Seville | 2 | 2 | 2 | 1 | 2.5 | 1 | 1-2 |
| Gou Tou | 2 | 2.5? | 2.5 | 1 | 2.5 | 1? | 1 |

***The smaller the number, the better is the ranking.**

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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P.O. Box 1849, Dundee, FL 33838
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Fax: 800 441 6294

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MONSANTO

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

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SYNGENTA
11051 Championship Drive
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Fax: 239 561 8569

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Fax: 863 675 1099
Moore Haven: 863 946 1515

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MECHANICAL HARVESTING VS. HAND PICKING

To be competitive in an increasingly global marketplace, Florida citrus growers must reduce production and harvesting costs. Immigration reforms and the Immigrant Responsibility Act caused a continual decrease in the traditional labor supply and a shortage in the labor required to harvest citrus. These facts have pushed the Florida Department of Citrus (FDOC) to re-examine the feasibility of mechanical harvesting for citrus crops. For the last few years, the FDOC has been supporting, testing, and evaluating several mechanical harvesting devices.



mechanical harvesting. For example, trunk shakers can only operate where the trees have clear, tall trunks and the canopy has been skirted (lower branches removed). Not all citrus crops can be mechanically harvested. Current mechanical harvesting devices are not well adapted to ‘Valencia’ because of the presence of 2 crops (one mature and another that will be mature next season) on the tree. Furthermore, at the present time for the fresh market, citrus fruit must be hand-harvested.



Leaf and flower drop caused by a trunk shaker in March with no significant reduction in fruit set and production.

About 20,000 acres were mechanically harvested last season. It is expected that 30,000 acres will be harvested this season and that most processed fruit will be harvested mechanically 10 years from now. Crop removal by mechanical harvesting ranges from 90 to 95%. Mechanical harvesting was demonstrated to be more cost effective (25-75% potential cost savings) than hand labor, but groves need to be prepared for



About 30 copies of the 140-page book entitled **“WORKER PROTECTION STANDARD FOR AGRICULTURAL PESTICIDES – HOW TO COMPLY”** are available for sale at the Hendry County Extension Office **(only \$3.00/copy)**. They will be sold on first come first serve basis.

CITRUS RESET MANAGEMENT

For maximum efficiency of a production unit or grove, it is essential that every tree location is occupied by a tree and that every tree be healthy. The average annual tree loss across the Florida citrus industry is around 4%. However, the extent of tree loss among individual groves can vary from zero to 10% or more. Prompt replacement of dead and declining trees means higher average long-term returns from the grove. If the declining trees remain in the grove, they keep getting weaker and yield less fruit each year and therefore the potential production capacity for the grove keeps declining even though production costs remain the same. It is very important to remove and replace such trees once it is clear that they are declining and they are not profitable. However, the reason for the decline should be found and the condition should be corrected so that the replacement tree does not suffer the same fate. If the evaluation shows that it will be practically impossible or very costly to correct the situation such as changing the height of the water table, then it is wise not to replant the site.

The resetting program should be conducted regularly rather than being delayed until serious losses in production have occurred. Resets should be planted in the spring or fall with the same cultivar already in the block. Usually, it is more economical to keep resetting and not to push the entire block unless the cultivar already in the block and/or the tree spacing between rows is an undesirable one. Replanting in a mature grove seems justified only when a minimum of 8 ft between canopy driplines, not from trunk-to-trunk, is available for canopy development of the new trees.

Replacement of dead, diseased, and declining trees in Florida citrus groves should always be an important part of the total production program.

Caring for young citrus trees is not an easy task. Resets should be watered, protected, fertilized, and weeded regularly. Because of their frequent flushing cycles, young trees are more sensitive and more attractive to pests than mature trees. Therefore, special care is needed to have pests under control. Resets often present an even greater problem because trees are usually scattered throughout the grove. Scattered resets frequently have serious weed problems since removal of the previous tree allows the area to receive more sunlight and provides more favorable conditions for weed growth.

Keeping weeds under control during the established period of the reset is very important. Weeds compete with young citrus trees for moisture and nutrients and they must be controlled. Weed control around a reset site should be considered at pre-plant, early post-plant, and after the tree is established. Control of weeds prior to planting should be provided. If residual herbicides are used, they should be used in greatly reduced rates and well in advance of planting so that harmful residues do not remain which might damage the reset. Contact or growth regulating herbicides are usually preferred since they do not leave residual effects.



WEED CONTROL

Weed control during the establishment period or approximately the first year is frequently quite difficult. Hand labor is scarce and expensive. Trunk damage by hoes or other cultivation equipment further compounds the problem. Chemical weed control provides at least a partial solution to the problem during this establishment period. There is now a fairly wide selection of residual herbicides available, which can be used on young trees. These materials should be applied frequently but at reduced rates. Be sure to read labels carefully for restrictions on the use of herbicidal materials.

FERTILIZATION

Reset fertilization requires an extra effort beyond the needs of the bearing grove. Frequent application of water-soluble fertilizers with irrigation water (fertigation) can increase fertilizer efficiency. If the grove is under a fertigation program, there is no need for special care in terms of nutrition for resets. Great care must be taken to ensure that proper rates of fertilizer materials are dispensed to prevent nutritional deficiencies or toxicities. Frequent light applications usually produce best results and lessen the danger of leaching but these practices need to be evaluated for cost effectiveness. The use of controlled-release fertilizers for resets may be a better option rather than making several trips to scattered resets throughout large blocks.

IRRIGATION & DRAINAGE

Young citrus trees require frequent but moderate water application for survival and proper growth. Competition for water is accentuated by nearby older trees or if weeds are allowed to grow close to the young trees. Anything that can be done to discourage competition for available water should be beneficial to the young tree. Irrigation systems should be in place before planting trees. Special modifications can sometimes be made to supply water for resets. However, the

irrigation frequency necessary to sustain a mature grove is rarely adequate for good growth of newly-set trees, and young trees should be checked frequently to be certain they are receiving sufficient water.

Drainage is as important as irrigation. Excess water must be removed from the rootzone. The concept of total water management must be practiced. If either system—irrigation or drainage—is not designed, operated, and maintained properly, then the maximum profit potential of a grove cannot be achieved. In southwest Florida, both surface and subsoil drainage is necessary to obtain adequate root systems for the trees.



SPROUTING

Resets require periodic sprout removal. The use of insulating tree wraps usually eliminates the need for sprouting. Wraps often stay in place for up to 3 years. They should, however, be checked periodically for the presence of ants or fungal diseases. Freedom from sprouts may be enough to justify their use. Wraps will also provide protection from errant herbicide applications. There are no simple answers to the use of wraps. Each situation is different and requires careful horticultural and economic consideration to arrive at the best procedure.

MORE ON MECHANICAL HARVESTING VS. HAND PICKING



The current Florida Department of Citrus (FDOC) Harvesting Program was restarted in January 1995. The University of Florida, the FDOC, and the USDA's Agricultural Research Service conducted a prior cooperative research and development program for about 25 years (1959 - 1984) at the Lake Alfred Citrus Research Center. Inventors, growers, and equipment manufacturers also participated in this program.

The Canopy Area Shake and Catch System is potentially very versatile and should be capable of mechanically harvesting 80 to 95% of the fruit from any citrus grove in Florida. When a hand gleaning crew follows the harvester, the 5 to 20% of the crop that remains on the tree or ground can be recovered, so none of the crop needs to be abandoned. The hydraulically powered shaker head has plastic probes

that are pushed into the fruiting canopy to a depth of about 30 to 36 in. A 5 second shake will remove about 95% of the fruit. The shaker head is positioned into successive areas of each tree or hedgerow of trees.

An effective fruit catching and handling machine is also a necessity if this harvesting system is to be economically successful. The trees must be skirted to 24 in., but special hedging and topping are not required.

The Trunk Shake and Catch

Harvesting Systems offer complete trunk shake and catch harvesting systems that are compatible with the grove conditions in the Florida citrus industry. These harvest systems require that the groves be prepared for mechanical harvesting. This generally amounts to selecting only those groves in which the clear trunk height to the first branches is 15 in. or more, the average trunk diameter is 9 in. or less, the spacing between trees down the row is uniform at 11 to 15 ft, tree age is similar (not a rehabilitated grove having a mixture of survivor and replacement trees), headlands are adequate for quick machine turn-around, swales are graded uniform from the trunk line, and that the yield/acre is good.



The Canopy Penetrate Pull and Catch Harvester

does not shake, beat, or twist the tree to get the fruit off. It simply pulls each fruit away from the stem. To do this on the present harvester, 900 hollow metal arms (each 8 ft long) mounted on a 10 ft long by 15 ft high panel are pushed into the fruiting canopy to a depth of 8 to 9 ft (the trunk line) then withdrawn. Spaced along each vertical side of the arms are three spring-loaded plastic fingers that hook the fruit stems and pull the fruit off as the arms are withdrawn from the canopy. This harvester will require the trees to be topped at a fixed height (probably 17 ft), to be skirted at about 2 ft to accommodate the fruit collection system, and to be hedged at a maximum canopy depth of 8 ft from the trunk centerline. Close-planted, hedged, topped, and skirted trees will allow this harvester to operate with its best productivity. Worker productivity would be about 4 times that of hand harvesters. If 2 gleaners could keep up with the machine and recover the remaining 10% of the crop, worker productivity would be reduced to 3 times that of hand harvesters.

The Continuous Travel Canopy Shake and Catch Harvest Systems appear to be capable of cutting harvesting cost by up to 75% and increasing labor productivity by 12 to 25 times. The trunk shake and catch harvest systems are capable of cutting harvesting cost by up to 50% and increasing labor productivity by 5 to 8 times. The Canopy Area Shake and Catch system appears to be capable of cutting harvesting cost by up to 30% and increasing labor productivity by 2 to 3 times.



Hedging, topping, and skirting for mechanical harvesting

Hedging to maintain an 8 ft wide equipment alley, or row middle, between rows is a standard industry practice no matter how wide or narrow the spacing between rows may be. Topping at 14 to 18 ft was a rule-of-thumb, until the 1998-99 season when some harvesters (pickers) started refusing to pick groves that were over 14 ft tall. Skirting to remove the low canopy foliage between the ground and 12 or 18 in. above the ground seems to be on the increase, versus letting the low foliage touch the ground. Most nurseries only offer trees that begin branching at 12 to 15 in. above the ground. The efficient mechanical harvesting systems require 24 to 30 in. of clear trunk height. Data from many commercial groves shows that total yield/acre is not decreased permanently when groves are skirted for mechanical harvesting. A 5 to 15% yield loss will occur the first year, but yield returns to normal in 2 years.



CITRUS CANCKER WORKSHOP

The program was approved for:

**3 CEUs for Pesticide License Renewal
2 CEUs for Certified Crop Advisors**

All workshops will be held from 9:00 a.m. – 12:00 p.m.

Refreshments will be served.

9/30/2003 – Tavares

Lake County Extension Office
30205 State Road 19
Tavares, FL 32778

10/01/2003 – Lake Alfred

Citrus Research and Education Center
700 Experiment Road
Lake Alfred, FL 33850

10/02/2003 – Ft. Pierce

Indian River Research and Education Center
2199 South Rock Road
Ft. Pierce, FL 34945

10/07/2003 – Sebring

Highlands County Extension Office
4509 George Boulevard
Sebring, FL 33875

10/08/2003 – Wauchula

Hardee County Extension Office
507 Civic Center Road
Wauchula, FL 33873

10/09/2003 – Immokalee

Southwest Florida Research and Education Center
2686 State Road 29 North
Immokalee, FL 34142



CITRUS CANKER WORKSHOP AGENDA

- 9:00 – 9:10 Opening Remarks**
Industry Representative (Andy LaVigne or designee)
Richard Gaskalla
- 9:10 – 9:30 Citrus Canker Biology – *What it means to you?***
Pete Timmer – UF/IFAS
Pam Roberts – UF/IFAS
- 9:30 – 10:00 Relative Risk/Decontamination – *Which actions can cause the most harm?***
Tim Schubert – DPI
- 10:00 – 10:20 Research – *Is relief in sight?***
(Tim Gottwald’s presentation)
Wayne Dixon – DPI
Tim Riley – USDA
- 10:20 – 10:30 Break**
Refreshments provided by Florida Citrus Mutual
- 10:30 – 11:00 Panel Discussion – *How are grove owners are dealing with canker/decontamination?***
Greg Carlton – DPI
Small grove owner (FCM to identify)
Large grove owner (FCM to identify)
- 11:00 – 11:30 Regulatory – *What are the consequences of non-compliance?***
- CCEP Update (Riherd, Carlton, or Gaskalla)
 - ROVs/monetary fine formula (Riley)
 - Compliance Agreements (Estes)
- 11:30 – 11:45 Quiz . . . *Were you paying attention?***
- 11:45 – Noon Door prizes, “Ease of Transmission” demonstration and Closing Remarks**
Regional citrus association leader (e.g. Ron Hamel, Doug Bournique, etc.)

Meeting Locations, Dates

- Tavares, 9/30
- Lake Alfred, 10/01
- Ft. Pierce, 10/02
- Sebring, 10/07
- Wauchula, 10/08
- Immokalee, 10/

APPROVED DECONTAMINATION PRODUCTS & METHODS

In order to prevent the spread of citrus canker disease, it is essential that personnel and equipment working near or contacting any citrus plant material be decontaminated in accordance with Citrus Canker Eradication Program (CCEP) rules, with an approved chemical, regardless of whether an infestation has been proven to exist. Risks of acquiring and dispersing citrus canker inoculum are greatest when diseased citrus plant material and surrounding vegetation are wet. Avoid any unnecessary contact with citrus.

DECONTAMINATION OF PERSONNEL: All persons should disinfect hands, arms and any other parts of the body that have contacted citrus and surrounding vegetation, plus any clothing, 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 and worker accessories associated with harvesting operations 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 handwashing 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.

Personnel Decontaminants for use on Clothing AND Skin:

1. * **GX-1027 Antimicrobial Soap** Galloway Chemical (800) 445-1143
2. * **Canker Guard** Flo Tech. Inc. (800) 335-6832
3. * **Csan 154 QT Soap** Bell Chem Corporation (800) 659-2355
4. * **EcoCare 360** Ecolab (651) 293-2848
- 5a. * **Medi-Kwik AntiMicrobial & Fungicidal Skin Cleanser** Envirosafe, Inc. (800) 227-9744
- 5b. * **Triple Crown Super Healer** Envirosafe, Inc. (800) 227-9744
6. * **QHS Quaternary Hand Sanitizer** Chemstar Products, Inc. (813) 978-8648
7. * **C-Soap** Agri Flow (863) 381-2628

Personnel Decontaminants for use ONLY on Skin:

- A. **Hibiclens; Hibistat** SSL (888) 566-3468
- B. **EcoCare 250; EcoCare 260** Ecolab (651) 293-2848
- C. **EcoCare 350** (alcohol-base / no rinse) Ecolab (651) 293-2848
- D. **AgriCure** ILTC (305) 859-9119
- E. **Pure Guard Antibacterial Handwash with Germsafe** ILTC (305) 859-9119
- F. **FS Antimicrobial Hand Cleaner; FS E-2 Sanitizing Hand Soap** ZEP Manufacturing Co. (800) 313-8439
- G. **Acclaim Antibacterial Liquid Hand Soap** ZEP Manufacturing Co. (800) 313-8439

DECONTAMINATION OF EQUIPMENT: Equipment and vehicle surfaces (including undercarriages) should be regularly pressure-washed with detergent and inspected for freedom from plant debris and soil residue, and then further disinfected with an approved quaternary ammonium chloride compound (QAC), applied to all surfaces to the point of runoff. Fruit picking sacks, picking gloves, pickers’ hats and clippers must also be cleaned and disinfected with one of the following chemicals. Where skin sensitivity is of concern, these articles may be immersed in prescribed QAC or chlorine solutions for ten minutes, and then rinsed in clean water prior to use. 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 products.

Quaternary Ammonium Chloride ‘QAC’ The use of these compounds is recommended for vehicles, tools and equipment. **Do not use on personnel.** Apply all QAC products at 2000 ppm (0.2%) QAC solution to all equipment surfaces to the point of runoff (dilution ratio 1:108). Recommended contact time is 10 minutes. The following QAC products are approved for use in decontamination of equipment, and carry EPA Section 3 registrations:

1. **CITRA-SOLV / CANKER-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. **DECCOSAN 321** EPA Reg. No. 10324-72-2792. Decco Cerexagri, Inc. (800) 221-0925
9. **CPF QUAT** EPA Reg. No. 10324-72-9367. Theochem Laboratories, Inc. (800) 237-2591
10. **HDQ-22 High Dilution Quat** EPA Reg. No. 1839-167-70671. Chemstar Products, Inc. (813) 978-8648
11. **Canker Control Concentrate** EPA Reg. No. 1839-167-22061. Galloway Chemical Division (800) 445-1143
12. **C-Quat** EPA Reg. No. 10324-72-73439. Genesis Technologies (800) 825-5810
13. **J & J Disinfectant Spray** EPA Reg. No. 10324-72-32981. J & J Chemical Co. (800) 345-3303
14. **Canker-Solv (neutral pH)** EPA Reg. No. 10324-108-72160. FLO-TEC Inc. (800) 335-6832
15. **Canker-Solv Reduced Corrosion** EPA Reg. No. 10324-109-72160. FLO-TEC Inc. (800) 335-6832
16. **AP Neutral Disinfectant Cleaner** EPA Reg. No. 1839-167-57611. CD Brown Co., Inc. (800) 749-6294
17. **Microdyne Extra** EPA Reg. No. 10324-72-74098. Eurochem International (404) 696-9867
18. **C-Quat Plus** EPA Reg. No. 10324-72-73439. Genesis Technologies (800) 825-5810
19. **CANKER QUAT** EPA Reg No. 1839-167-6428. International Chemical Corp. (800)352-2436

ALTERNATIVE METHODS FOR DECONTAMINATION OF EQUIPMENT:

(A) Peracetic Acid: Only approved formulations may be used, only with injection systems, and may only be used on equipment, including food contact surfaces. Rinsing is not required if used in accordance with product label. This material must be applied to reasonably clean equipment, at CCEP-approved ratio indicated. The following products are approved for use in decontamination of equipment, and carry EPA Section 3 registration:

- (1) **VigorOx Citrus XA** EPA Reg. No. 65402-6. FMC Fresh Produce Technologies (863) 683-5411
Dilution ratio 1:378
- (2) **Peroxy-Solv** EPA Reg. No. 72160-1. FLO-TEC Inc. (800) 335-6832
Dilution ratio 1:388

(B) Hydrogen Peroxide Products: Only approved formulations may be used, only with injection systems, and may only be used on equipment, including food contact surfaces. Rinsing is not required if used in accordance with product label. This material must be applied to reasonably clean equipment, at CCEP-approved ratio indicated. The following product is approved for use in decontamination of equipment, and carries EPA Section 3 registration:

- (1) **OxiDate** EPA Reg. No. 70299-2. BioSafe Systems (888) 273-3088
Dilution ratio 1:100

(C) Copper-based products: Only approved formulations may be used, and only on equipment, vehicles, tools, clothing and shoes. Not for use on skin. Rinsing with potable water is required if direct or indirect fruit contact occurs. This material must be applied to reasonably clean equipment at CCEP-approved ratio indicated. Dilute with clean water with the pH adjusted to <7.0 before mixing. The following product is approved for use in decontamination of equipment, and carries EPA Section 3 registration:

- (1) **Eradicator** EPA Reg. No. 66675-4. The New Magna-Bon Corp. (863) 357-0400
Dilution ratio 1:1000

(D) 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. Bleach is not an effective decontaminant if used on dirty equipment.

(E) 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.

(F) 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.

Florida Department of Agriculture and Consumer Services Division of Plant Industry

Report on Citrus Canker in Florida Through 16 August 2003

Background

Florida is currently fighting Asian-strain (A-strain) bacterial citrus canker in 15 counties: Brevard, Broward, Collier, DeSoto, Hendry, Highlands, Lee, Orange, Manatee, Martin, Miami-Dade, Monroe, Okeechobee, Palm Beach and Sarasota. A history of the disease by county is presented below. Key points, which impact the entire state's citrus canker eradication program include:

- Canker first identified in Florida in 1910.
- Eradicated in 1933.
- Discovered in Manatee County 53 years later (1986).
- Declared eradicated in 1992.
- Discovered for a third time in 1995 near Miami International Airport.
- Possibility of canker spread is monitored with routine surveys by Federal and State agriculture officials.

The movement of citrus plant material from quarantine areas is prohibited, though under certain conditions, citrus fruit may be moved when certified by the Department.

Eradication Program

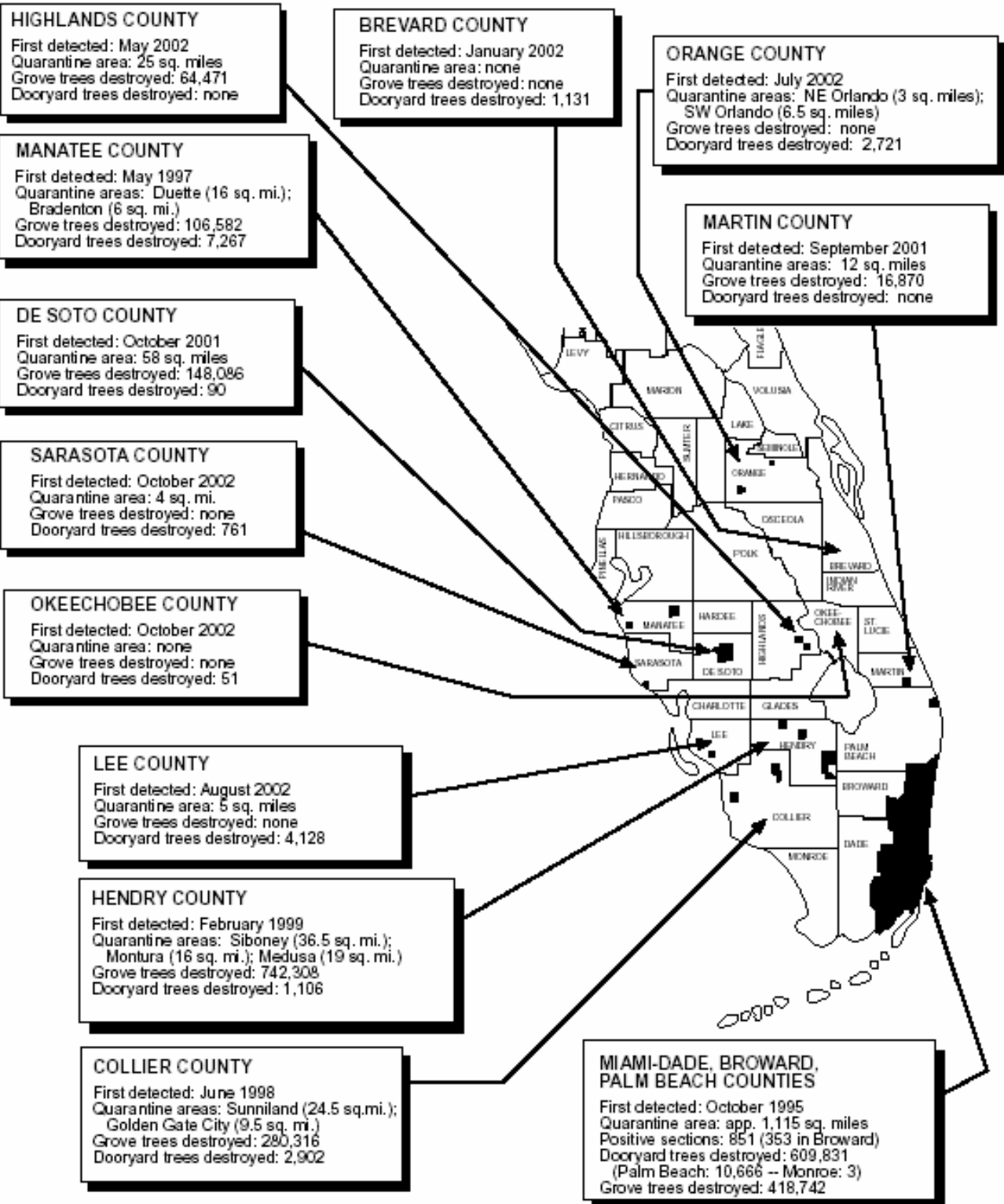
- Citrus trees suspected of being infected with canker are examined by on-site pathologists and samples are sent to the Department's laboratory for diagnostic confirmation.
- Using geographic positioning system (GPS) coordinates, a 1900-ft. circle is drawn around infected trees.
- All positive and exposed trees within 1900 ft. of an infected tree are destroyed.

Quarantine Areas

- Quarantine areas may be established to prevent spread of the disease.
- Strict policies are enforced. The movement of citrus plant material from quarantine areas is prohibited (though under certain conditions, citrus fruit may be moved when certified by the Department).
- Citrus cannot be planted for two years after the last positive tree detection, except with permission of the area CCEP Director.

| | |
|---|------------------|
| Total trees destroyed to date statewide: | |
| Residential | 632,048 |
| Commercial/Grove | <u>1,843,610</u> |
| | 2,475,658 |

CITRUS CANCKER IN FLORIDA 2003



16 August 2003

[Schedule 19: www.doacs.state.fl.us/canker/cankerflorida.pdf]

A New Event For Citrus Growers!

For more information, contact:

Florida Grower

407-539-6552

www.floridagrower.net

Thanks to a partnership between the Indian River Citrus League, the University of Florida/Institute of Food and Agricultural Sciences, and *Florida Grower*, the annual Indian River Citrus Seminar will now include much more than just seminars. Also included this year will be a trade show, a tractor rodeo, equipment demonstrations, an evening banquet, and more.

The dates and location of the show have changed as well. The event will be held on Jan. 27–28, 2004, at the newly constructed St. Lucie County Fairgrounds in Fort Pierce.

The valuable lineup of seminars will include talks on citrus fertilization, pesticide issues, precision equipment, rootstocks, marketing, packinghouse topics, and others. Attendees will also have the opportunity test the latest tractors and equipment. Educational programs for grove supervisors and workers will be available, as well. Continuing education units and lunch are provided on both days.

On the night of Jan. 27, the Indian River Citrus Seminar will hold its annual banquet at the Pelican Yacht Club in Ft. Pierce. The banquet will feature guest speakers, door prizes, and a chance to spend time with colleagues in a wonderful atmosphere. For more information, contact the Indian River Citrus League at 772-562-2728 or e-mail info@ircitrusleague.org.

Visit **www.FloridaGrower.net** to register
or contact *Florida Grower* at 407-539-6552

Twelve copies of the "2003 Florida Citrus Pest Management Guide" and 10 copies of the "Identification of Mites, Insects, Diseases, Nutritional Symptoms and Disorders on Citrus" are available for sale at the Hendry County Extension for \$8.00 and \$11.00/copy, respectively.

WPS classes are being conducted in English & Spanish at the Hendry County Extension Office. They can also be carried out locally at the grower office or shop for a group of not less than 15 people. For more information, call me at 863 674 4092.

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