

Hendry County Extension, P.O. Box 68, LaBelle, FL 33975 (863) 674 4092

# Flatwoods Citrus



Vol. 14, No. 11      November 2011

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



## Table of Contents

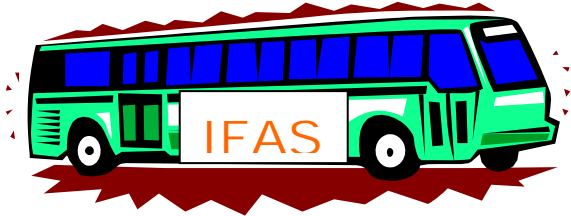
Important Events	2
Important Websites	3
Newsletter Sponsors	4-7
100 Percent Orange Juice	8-9
SaveOurCitrus.org	10
Low Volume Applications For Psyllid Control	11
Reset Management	12
Regional Citrus Psyllid Suppression Plan	13-14
Developing a Psyllid Management Plan	15-18
Increasing Efficiency of Nutritional Programs	19-20
SECC Ag Outlook	21-22
<b>Citrus Newsletter Evaluation-Please Respond If You Have Not</b>	<b>23</b>

**Previous issues of the Flatwoods Citrus newsletter can be found at:**  
<http://citrusagents.ifas.ufl.edu/agents/zekri/index.htm>  
<http://irrec.ifas.ufl.edu/flcitrus/>

Please take a moment to rate the quality and usefulness of the information presented in the Flatwoods Citrus newsletter this year. Go to Page 23.

## I M P O R T A N T   E V E N T S

### HENDRY COUNTY EXTENSION AG TOURS



Saturday, 3 December 2011  
Saturday, 4 February 2012  
For more information or to sign up,  
call Debra at 863 674 4092

### Citrus Research Field Day

Tuesday, November 15, 2011

Pre-registration required

Call 863 956 8643 or send an e-mail to: <wilsonmj@UFL.EDU>

### The Florida Citrus Show in Fort Pierce, January 25-26 2012

For more information and registration, go to: <http://www.citrusshow.com/>

### International Symposium on Mechanical Harvesting & Handling Systems of Fruits & Nuts

April, 2-4, 2012, Lake Alfred CREC

For more details and registration, go to:

<http://conference.ifas.ufl.edu/harvest/>

### ANNUAL FLORIDA CITRUS GROWERS' INSTITUTE

Date & Time: Tuesday, 10 April 2012, 8:00 AM – 3:30 PM

Location: Avon Park Campus of South Florida Community College

# IMPORTANT WEBSITES

**Citrus Extension:** <http://www.crec.ifas.ufl.edu/extension/>

**Citrus Health Management Areas (CHMAs):**

[http://www.crec.ifas.ufl.edu/extension/chmas/chma\\_overview.shtml](http://www.crec.ifas.ufl.edu/extension/chmas/chma_overview.shtml)

**Florida Citrus Extension Agents:**

[http://citrusagents.ifas.ufl.edu/Citrus\\_Agents\\_Home\\_Page/Citrus\\_Agents\\_Home.html](http://citrusagents.ifas.ufl.edu/Citrus_Agents_Home_Page/Citrus_Agents_Home.html)

**Southwest Florida Research and Education Center (SWFREC):**

<http://swfrec.ifas.ufl.edu/>

**Citrus Research & Education Center:**

<http://www.crec.ifas.ufl.edu/>

**Florida Citrus Resources:** <http://irrec.ifas.ufl.edu/flcitrus/>

**Florida Citrus Pest Management Guide:**

[http://edis.ifas.ufl.edu/topic\\_book\\_florida\\_citrus\\_pest\\_management\\_guide](http://edis.ifas.ufl.edu/topic_book_florida_citrus_pest_management_guide)

**Citrus Greening (Huanglongbing)**

<http://www.crec.ifas.ufl.edu/extension/greening/index.shtml>

[History](#) | [Regulations](#) | [Transmission](#) | [Pathogen](#) | [Alternate Hosts](#) | [Symptoms](#) | [Nutrient Deficiencies Compared to Citrus Greening](#) | [Diagnostics](#) | [Management](#) | [Photo Gallery](#) | [Links](#) | [Contacts](#)

**Citrus Canker**

<http://www.crec.ifas.ufl.edu/extension/canker/index.shtml>

[History](#) | [Eradication](#) | [Decontamination](#) | [Pathogen Symptoms & Susceptibility](#) | [Diseases Commonly Mistaken for Citrus Canker](#) | [Spread](#) | [Management](#) | [Links](#) | [Contacts](#)

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## NEW RESEARCH SUGGESTS DRINKING 100 PERCENT ORANGE JUICE IS ASSOCIATED WITH IMPROVED NUTRIENT ADEQUACY AND DIET QUALITY AMONG CHILDREN



### One Hundred Percent Orange Juice May Play an Important Role in Supporting Intake of Certain Under-consumed Nutrients

Orange juice may do more for children's diet and overall health than you think, according to results of a recently published study in Nutrition Research.

Data from this study suggest children (ages 2-18 years) who drink 100 percent orange juice tend to have improved nutrient adequacy and diet quality, as well as certain diet and health parameters. Additionally, the research suggested that

consumption of 100 percent orange juice was not associated with overweight or obesity in children.

As part of the study, researchers analyzed data from the 2003-2006 National Health and Nutrition Examination Survey (NHANES) and found that children who regularly consume 100 percent orange juice tended to have significantly higher intakes of vitamin C, potassium, vitamin B6, folate, dietary fiber and magnesium than non-consumers. None of the children who consumed 100 percent orange juice were below the Estimated Average Requirement (EAR) for vitamin C, while nearly 30 percent of non-consumers were below the EAR. Furthermore, diet quality (as measured by the Healthy Eating Index (HEI-2005)) was significantly higher in those children consuming 100 percent orange juice than in non-consumers, as was intake of total fruit, fruit juice and whole fruit.

"A growing body of research has painted a clear picture that enhanced nutrient intake and better diet quality are associated with drinking 100 percent orange juice in children," said study co-author Carol E. O'Neil, PhD, MPH, LDN, RD, School of Human Ecology, Louisiana State University Agricultural Center. "Our research adds further support to the association between drinking 100 percent orange juice and higher intakes of five important nutrients--vitamin C, folate, magnesium, dietary fiber and potassium--which are generally under-consumed by the U.S. population."

This is the first study that has examined the usual intake of 100 percent orange juice in a nationally representative population, and these data add support to previous studies that found no association between 100 percent fruit juice consumption and increased risk for overweight and obesity in children and adolescents.

Furthermore, children who consumed 100 percent



orange juice had significantly lower mean LDL cholesterol levels than those who did not consume 100 percent orange juice.

"These findings are consistent with the Dietary Guidelines for Americans, 2010, which conclude that 'for most children and adolescents, intake of 100 percent fruit juice is not associated with body weight,'" said Gail Rampersaud, MS, RD, LDN, Associate in Nutrition Research and Education, University of Florida. "It's encouraging that the overall body of research provides evidence to support children enjoying all of the taste, nutritional and health benefits that 100 percent orange juice offers."

Relation to Dietary Guidelines for Americans, 2010

According to the Dietary Guidelines for Americans, 2010, the "total diet" should consist of nutrient-dense foods that provide essential nutrients and health benefits.

"People can feel good about enjoying one hundred percent orange juice daily because it fits many of the key recommendations outlined in the Dietary Guidelines," said Rampersaud. "For example, 100 percent orange juice is more nutrient-dense than many commonly-consumed 100 percent fruit juices, and one 8-ounce serving is a good source of potassium and folate, as well as an excellent source of vitamin C."

Editor's Note: The National Health and Nutrition Examination Survey (NHANES) is an ongoing series of surveys, implemented by the Centers for Disease Control and Prevention, that are designed to assess the health and nutritional status of children and adults in the United States. The NHANES surveys are conducted and analyzed in a way to be representative of the U.S. population. The analysis published in Nutrition Research used 2003-2006 data from more than 7,200 children and adolescents.

## Health and Nutrition Benefits of 100 percent orange juice:

- **Antioxidants.** One 8-ounce glass of orange juice gives you at least 100% of the recommended Daily Value for vitamin C. Vitamin C is an important antioxidant, as it may help neutralize "free radicals" formed as part of the body's natural oxidation processes. Some influences of modern life, like smoking and air pollution, may also be responsible for the formation of free radicals. Many scientists believe that free radicals may cause cell damage that contributes to the development or progression of chronic diseases like heart disease and cancer.
- **Weight Management.** One 8-ounce serving of orange juice is fat-free and, at 110 calories per 8-ounce glass, has fewer calories than many commonly consumed 100% fruit juices.
- **Glowing Skin.** Vitamin C found in orange juice is essential for the production of collagen, which is needed for healthy skin and gums. Collagen breakdown in the skin may lead to signs of premature aging. Regular consumption of Florida orange juice can provide you with the vitamin C you need to help support collagen formation.
- **Immune System Support.** When you get a cold, it's important to give your body the fluids and nutrients it needs. An 8-ounce glass of orange juice provides at least 100% of the recommended Daily Value for vitamin C, plus other nutrients and phytochemicals that can help support a healthy immune system.
- **Vitamin Absorption.** Citrus foods like orange juice are high in vitamin C, which may help boost the absorption of non-heme iron (the iron found in plants like spinach, not meat products). This is great news for young women, female athletes and vegetarians who may be more susceptible to iron deficiencies.
- **Reduce Cancer Risk.** A prominent cancer researcher, Dr. Gladys Block, Ph.D., reports that people with low vitamin C intake (less than 50 mg/day) appeared to have approximately twice the cancer risk, compared to people with higher (greater than 100 mg/day) vitamin C intake.

# SaveOurCitrus.org

<http://saveourcitrus.org/>

## FLORIDA

Entire state is under quarantine for citrus greening disease, Asian citrus psyllid, citrus canker and sweet orange scab. A relatively small area of southwest Florida in adjoining areas of Hendry and Collier counties is under quarantine for citrus black spot.

For regulatory information regarding the movement of fresh citrus fruit, citrus nursery stock or other citrus parts (cut foliage, seeds, wood, etc.), contact the USDA State Plant Health Director's office at ( 352) 313-3040 or Florida's Citrus Health Response Program hotline at 1-800-282-5153, which is maintained by the Florida Department of Agriculture and Consumer Services.

**Do not ship dooryard citrus fruit outside of Florida. Fruit must be packed at a certified packinghouse, properly disinfected and accompanied by a USDA certificate.**



## Learn More

- [University of Florida's Citrus Research and Education Center](#)
- [University of Florida's Citrus Greening Training](#)
- [University of Florida IFAS Extension](#)
- [National Citrus Research Forum](#)

## LOW VOLUME APPLICATIONS FOR PSYLLID CONTROL

1. Psyllid management requires multiple seasonal treatments, which is expensive.
2. During spring and summer, when psyllid populations peak, foliar applications of insecticides against the psyllid are effective for only 2-3 weeks.
3. Psyllids quickly re-colonize groves from surrounding areas.

### What is a Low Volume (LV) application?

1. Spray volumes are typically 2-5 GPA
2. LV applicators run at higher speeds (5-10 MPH)
3. LV applicators tend to produce smaller droplets and deploy more droplets per acre than standard airblast sprayers.
4. LV applications typically are made at night to minimize drift.



### Why should you be interested in Low Volume (LV) applications?

1. Application is relatively inexpensive!
2. Application is fast!
3. Covers relatively larger areas in short amount of time!
4. Some equipment is truck mounted allowing for quick access in and out of groves.

### Concerns with Low Volume application

1. Effectiveness of controlling psyllid adults, nymphs, and eggs?
2. Legality -Labeling.
3. The misuse of one product, no rotation of chemicals having different mode of action.
4. Potential for drift.
5. Worker Safety.

### In laboratory experiments, greater psyllid kill was obtained with smaller spray droplet size

### All current available LV machines work

With pre-flush application, LV is equivalent to HV when chemicals are applied to every row

### Do I need to add Oil?

NO for Pyrethroids like Danitol and Mustang

YES for Delegate and Micromite, don't need much--1.5-2.0%

NEED MORE TESTING for organophosphates like Malathion and Dimethoate

### How fast should I run the truck?

For Pyrethroids (Danitol)—efficacy was equivalent between 5 and 8-10 MPH.

For an Organophosphate (Dimethoate)—efficacy was slightly better at 5 MPH than 8-10MPH.

### When should I apply?

Most efficient during the fall-winter dormant season

Must spray at night or early morning hours to minimize drift

Don't spray when wind is above 10 MPH—lots of drift and low efficacy

# 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. 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.

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.

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 the citrus psyllid and citrus leafminer under control. A rigorous program including systemic (Imidacloprid and Thiamethoxam) and contact pesticides is recommended. 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.



If the grove is under a fertigation program, there is no need for special care in terms of nutrition for resets. The use of controlled-release fertilizers for resets may be a better option rather than making several trips to scattered resets throughout large blocks with soluble dry fertilizers. Young citrus trees require frequent but moderate water application for survival and proper growth. Drainage is as important as irrigation. Excess water must be removed from the rootzone.

## REGIONAL CITRUS PSYLLID SUPPRESSION PLAN



As you are keenly aware, the Citrus Greening (HLB) disease is one of the most serious citrus diseases in the world. In Florida, our citrus industry is united in its efforts to battle this disease to survive! The industry's recent commitment to the unprecedented multi-million dollar investments into production research stands as testimony to the extent of our fight. It is hoped that the research investment will pay great dividends very soon, and that growers will have more "tools" to deal with HLB!

During the past 4 years, UF/IFAS scientists, including Drs. Phil Stansly, Alejandro Arevalo, Mongi Zekri and others in the "GULF" region... have concluded that "THE" most effective tactic that growers can "immediately" employ in their groves is a targeted dormant spray program to reduce the population of the citrus psyllids, which are vectoring "greening"! In addition, these scientists recently documented the results of our region's spraying initiative from the last 3 seasons and are recommending TWO sprays for the 2011-2012 season during the coming "dormant period"! We are targeting the (November--December and January--February) periods. This is the time when the psyllid populations are in decline here in the "GULF" region, and "the science" indicates that this timeframe would be the most effective time to conduct our comprehensive, coordinated psyllid suppression plan using aerial and ground spraying of selected chemical insecticides.

In this regard, the Gulf Citrus Growers Association, UF/IFAS' Southwest Florida Research and Education Center and the Florida Department of Agriculture & Consumers Services' Division of Plant Industry are initiating "ROUND FOUR" of our "regional" psyllid suppression plan featuring coordinated aerial and comprehensive ground spraying throughout the five county "Gulf" area. Meetings have been held through GCGA's Production & Research Committee to put this plan together. This MEMO is your "INVITATION" to join our fight against the psyllid! PLEASE review our "Gulf" Citrus Psyllid Suppression Plan.

2011-2012

REGIONAL CITRUS PSYLLID SUPPRESSION PLAN/GULF CHMA

Based upon the best available science, the psyllid suppression plan will begin in the “Gulf” citrus production region in November. The plan will feature cooperative aerial and/or ground applications of selected insecticides. This season’s plan again suggests TWO application periods: NOVEMBER-DECEMBER AND JANUARY-FEBRUARY!

These recommendations are based on the scientific evaluation of the last three season efforts!

The “Gulf” citrus production region has been sub-divided into Sub-Regions. Each Sub-Region will be coordinated by volunteer “Team Captain(s)”, who will follow-up with citrus growers within their Sub-Region to implement the plan. The “Sub-Regions”, and respective “Team Captains” AND their CONTACT INFORMATION are as follows:

EASTERN HENDRY SUB-REGION:	Jim Snively (863) 228-0002
	Joe Hilliard, II (863) 673-2043
	Danny Sutton (863) 675-2966
GLADES CO.--ORTONA SUB-REGION:	Kevin Rayburn (863) 673-8900
CENTRAL HENDRY SUB-REGION:	Mark Colbert (863) 673-0262
	Jim Cloughley (772) 473-9370
	Wes Mathis (863)-673-2892
FELDA/CORKSCREW SUB-REGION:	Dr. Mongi Zekri (863) 674-4092
	Bryan Beer (863) 675 1663
N. & S. SR 82/SR 29 SUB-REGION:	Tom Kirschner (239) 340-4729
SOUTH IMMOKALEE SUB-REGION:	Paul Meador (863) 675-8500
CHARLOTTE COUNTY SUB-REGION:	Fred Walters (941) 628-9310

AERIAL APPLICATORS will also serve as “key contacts” throughout the plan’s implementation. They will be making contacts on their current “grower customers”, as well as on growers within the “Sub-Regions” based on efficient aerial “logistics”.

Our AERIAL APPLICATORS are: Steve Fletcher, Fletcher Flying Service (239) 860-2028 and Jeff Summersill TRS AG Services (561-722-4502).

Scouting for Psyllids is conducted by FDACS/DPI and USDA. **Please Call Paul Mears (239) 707-6084 to get psyllid count in your grove or area. You can also get psyllid scouting reports at the CHMA website. IF YOU NEED HELP, PLEASE CONTACT THE TEAM CAPTAIN NEAREST YOUR GROVE OR YOUR AERIAL APPLICATOR.**

**YOUR SUPPORT AND PARTICIPATION WILL MAKE OUR EFFORT A SUCCESS!**

## Citrus Health Management Areas (CHMA's): Developing a psyllid management plan

Michael E. Rogers, Philip A. Stansly and Lukasz L. Stelinski

Effective control of the Asian citrus psyllid (*Diaphorina citri* Kuwayama) is an important component of Huanglongbing (HLB) management programs. Over the past several years, experience in Florida has shown that the most efficient way to control psyllids is for citrus growers to work together on an area-wide basis. The need for area-wide control of psyllids is due to the dispersal behavior of this pest which has been shown to move repeatedly between commercial citrus groves. When differences in timing of psyllid control programs exist within an area, the back and forth movement of psyllids could result in rapid re-infestations, despite the repeated attempts of individual growers to maintain psyllid populations at low levels.

***Successful psyllid management is a team effort with all citrus growers as participants.***

Establishment of Citrus Health Management Areas (CHMAs) has been proposed as an important strategy for reducing the spread of HLB. The primary goal of the formation of CHMAs is to coordinate psyllid control efforts to reduce the effect of psyllid movement between commercial citrus operations and thus reduce the need for repeated back-to-back insecticides applications for maintaining psyllid populations at low levels. Due to the limited number of pesticide modes of action available for controlling psyllids, CHMAs could also serve an important function in slowing pesticide resistance development in psyllid populations by coordinating applications of pesticides with similar modes of action.

Below, an example template (Table 1) is provided to aid in the development of a CHMA psyllid control program. Two key time slots and two more possible time slots are identified where grower coordination of psyllid control efforts are likely to be most effective in reducing overall psyllid populations. The first coordinated spray identified is during the month of November, just after the fall flush period has ended. Use of an organophosphate insecticide is recommended which would be appropriate for growers who do not plan on harvesting fruit during this time of the year. Blocks that will be harvested within 7 days of the coordinated spray could be treated with a pyrethroid. The next coordinated spray in January would be made in

those blocks with an OP while the rest of the area would be rotated to a pyrethroid. For any additional coordinated sprays conducted, growers are encouraged to rotate between these two pesticide modes of action. Use of organophosphate and pyrethroid insecticides for coordinated sprays is suggested because of 1) their general effectiveness in controlling all life stages of psyllids present when applications are made 2) there are multiple product choices within each mode of action and 3) these products can be applied using various application methods. As a result, these products provide flexibility to growers with different financial constraints making widespread participation in the program more likely to occur. Between the two optimal and two additional times identified for coordinated sprays, guidance is given for selecting additional products for psyllid control where growers choose to incorporate additional products into their overall psyllid management program.

The purpose of this example template is to help guide growers in the development of a psyllid control plan for their CHMA. This template is intended to provide suggestions that growers can take into consideration. Ultimately, **growers must decide how many sprays they can realistically coordinate in their CHMA and the timing of those applications.** These decisions can be complicated by a number of factors that vary by region including citrus variety and harvest date, fresh fruit for export versus juice fruit, and other ongoing cultural practices.

In Table 2, additional information is provided for all insecticides that might be incorporated into a psyllid management program. Insecticides are grouped by chemical class (or mode of action) to aid in the rotation of products with different modes of action, the recommended rates of product that should be applied, the appropriate application methods for each product that have been demonstrated to be efficacious, restricted entry intervals (REIs) and pre-harvest intervals (PHIs), and additional comments for most effective use of a product.

For more information, go to:

## Citrus Health Management Areas (CHMAs)

[http://www.crec.ifas.ufl.edu/extension/chmas/chma\\_toolkit.shtml](http://www.crec.ifas.ufl.edu/extension/chmas/chma_toolkit.shtml)





## Citrus Health Management Areas (CHMA's): Guide to developing a psyllid management plan

*Michael E. Rogers, Philip A. Stansly and Lukasz L. Stelinski*

**Table 1:** Planning template for CHMAs where most fruit harvesting expected in the months of Jan, Feb, Mar, May or June

Month	Timing	Product <sup>3</sup>	Comments
November / December	After last flush of the season	Organophosphate <sup>1</sup>	<b>*Optimal time for coordinated spray*</b> ; first dormant spray; serves as a clean up spray to eliminate adult ACP going into the overwintering period.
January / February	Prior to first flush of season	Pyrethroid <sup>2</sup>	<b>*Optimal time for coordinated spray*</b> ; second dormant spray; prior to first flush in spring control ACP that overwintered as adults or reproduced on unexpected winter flushes.
March (bloom period)	Depending on pest pressure	several options	Do not use pyrethroid since previously used. Do not use an organophosphate which is planned for the next application. Products that can be sprayed during bloom include Micromite and Portal but should only be applied when new flush is present since these products only control psyllid nymphs (not adults).
April	Immediately post bloom	Organophosphate <sup>1</sup>	<b>*Possible time for coordinated spray using an OP*</b> ; this time is the first opportunity to control adult psyllids that developed on flush associated with bloom when most insecticides cannot be applied due to label restrictions preventing application during bloom. Growers in CHMAs not participating in a coordinated spray at this time may choose to use a product with a different mode of action.
May	Depending on pest pressure	Various options	Could use a pyrethroid since not previously used. Other options include Movento, Delegate (if leafminer present) or carbaryl.
June	1 <sup>st</sup> summer oil spray	Various options	Depending on the product used in the previous spray, numerous products (see Table 2) could be added to the summer oil sprays as well as tank mixed with other products depending on the life stages of psyllid controlled by each product and other pests requiring control such as leafminer or rust mites. During this time it may be difficult to coordinate sprays with the same mode of action, but coordination of the timing of summer oil sprays by growers within a CHMA could still be a feasible goal.
July	2 <sup>nd</sup> summer oil spray	Various options	
August / September	Prior to fall flush	Pyrethroid <sup>2</sup>	<b>*Possible time for coordinated spray using a pyrethroid*</b> ; Control psyllids that may have developed on sporadic summer flushes prior to the fall flush period when psyllid populations can rapidly increase. Growers in CHMAs not participating in a coordinated spray at this time may choose to use a product with a different mode of action.
October	Depending on pest pressure	Various options	Do not use pyrethroid since previously used. Do not use an organophosphate which is planned for next application. Options include Movento, Delegate, and carbaryl.

<sup>1</sup> Organophosphate insecticides that can be used for psyllid control include Dimethoate, Imidan, Lorsban, Malathion and various generic formulations of these products.

<sup>2</sup> Pyrethroid insecticides currently registered for use in Florida citrus include Danitol and Mustang.

<sup>3</sup> Refer to Table 2 for information on product rates, application methods, psyllid life stages controlled and effective application methods.

# Citrus Health Management Areas (CHMA's): Guide to developing a psyllid management plan



Michael E. Rogers, Philip A. Stansly and Lukasz L. Stelinski

Table 2: Pesticide use information for developing psyllid management programs.

Chemical class	Active ingredient	Product	Rate/A	Application methods <sup>1</sup>	REI	PHI	Comments
<b>Products that control all psyllid life stages (eggs, nymphs and adults)</b>							
Carbamates	aldicarb	Temik 15 G	33 lbs	Soil	48 hrs	0; 30 days (lemons)	Slow acting on adult psyllids; product scheduled to be cancelled Dec 31, 2011.
	carbaryl	Sevin XLR	1.5 qts	Air, lv, ss	12 hrs	5 days	Short residual; fresh fruit for export should avoid use due to European MRL issues.
	oxamyl	Vydate	2 qts	ss	48 hrs	7 days	Short residual; fresh fruit for export should avoid use due to European MRL issues.
Organophosphates	chlorpyrifos	Lorsban	5 pts	Air, lv, ss	5 days	21 days	
	dimethoate	Dimethoate 4E	1 pt	Air, lv, ss	10 days	15-45 days	Consult label for buffering instructions when pH is greater than 7.
	malathion	Malathion 5	2 pts	Air, lv, ss	12 hrs	7 days	
	phosmet	Imidan	1.0 lb	Air, lv, ss	24 hrs	7 days	Consult label for buffering instructions when pH is greater than 7.
Pyrethroids	fenpropathrin	Danitol 2.4EC	1 pt	Air, lv, ss	24 hrs	1 day	
	zeta-cypermethrin	Mustang	4.3 fl oz	Air, lv, ss	12 hrs	1 day	
Neonicotinoids	imidacloprid	Admire Pro 4.6F	7-14 fl oz	Soil drench	12 hrs	0 day	Important to minimize use of foliar applications to prevent insecticide resistance development to maintain use for young tree care.
	imidacloprid	Provado 1.6F	10-20 fl oz	ss	12 hrs	0 day	
	thiamethoxam	Actara 25 WG	4.0-5.5 fl oz	ss	12 hrs	0 day	
	thiamethoxam	Platinum 75 SG	1.83-3.67 fl oz	Soil drench	12 hrs	0 day	
Spinosyns	spinetoram	Delegate WG	4 oz	lv, ss	4 hrs	1 day	Apply with 2% oil v/v. Also controls leafminer
<b>Products that control psyllid immature stages only (eggs and/or nymphs)<sup>2</sup></b>							
Benzoylureas (growth regulator)	diflubenzuron	Micromite 80 WGS	6.25 oz	lv, ss	12 hrs	21 days	Apply with 2% oil v/v. Also provides control of leafminer and rustmites.
METI insecticides	fenpyroximate	Portal	4.0 pts	ss	12 hrs	14 days	Provides suppression of rustmites.
Petroleum distillates	petroleum oil	numerous	2% v/v	ss	12 hrs	0 days	Provides suppression of leafminer and rustmites.
Tetramic acid derivatives	spirotetramat	Movento 240 SC	10 fl oz	ss	24 hrs	1 day	Systemic activity provides extended control of nymphal populations. Must use surfactant.

<sup>1</sup> air=aerial application; lv=low volume application; ss=speed sprayer / traditional airblast application.

<sup>2</sup> To obtain control of adult psyllids, these products may be combined with products listed above.

# Increasing Efficiency and Reducing Cost of Nutritional Programs



## Importance of N & K

- N & K are the most important nutrients for Florida soils and citrus.
- An adequate level of N is required for vegetative growth, flowering, and fruit yield.
- K also plays an important role in determining yield, fruit size, and quality.
- Fertilizer ratios of N to  $K_2O$  are usually 1:1. However, a ratio of 1:1.25 is recommended for high pH or calcareous soils.

## Management practices to improve fertilizer efficiency

They include:

- ◆ Evaluation of leaf analysis data
- ◆ Adjustment of N rates to the level based on expected production and IFAS recommendations
- ◆ Selection of fertilizer formulation to match existing conditions
- ◆ Careful placement of fertilizer within the root zone
- ◆ Timing to avoid the rainy season
- ◆ Split application
- ◆ Irrigation management to maximize production and minimize leaching

## Tissue and soil analysis

- Leaf sampling and analysis is a useful management tool for fertilizer decisions.
- Soil analysis is useful for determining the pH and concentrations of P, Ca, and Mg.

## N requirements for mature trees

- In a mature grove where there is little net increase in tree size, N used for leaf growth is largely recycled as leaves drop, decompose, and mineralize. Replacement of the N removed by fruit harvest becomes the main requirement, and nutrient requirements should vary as the crop load changes.

## Fertilizer Sources

- Inorganic and synthetic organic nitrogen fertilizers are high-analysis materials and are generally most economical to use in citrus groves. They are rapidly available, unless they have been formulated in a controlled-release form.
- The use of high analysis fertilizers eliminates much of the filler. A great deal of the mixing, transportation, and application cost is reduced.

- The use of controlled-release fertilizers for resets in established groves is a feasible option.

### **Timing and frequency of application**

- 2/3 of the tree's nutritional requirements should be made available between January and early June, with most of it in place during flowering and fruit-setting period. The remaining 1/3 can be applied in September or October.
- Split fertilizer application or fertigation combined with sound irrigation management increase fertilizer efficiency by maintaining a more constant supply of nutrients and by reducing leaching if unexpected rain occurs. Less fertilizer will be required.
- Less fertilizer may also be required if fertilizer is confined to the root zone and if timing is adjusted to avoid rainy periods.

### **Foliar feeding**

- Foliar feeding is useful under calcareous soil or any other condition that decreases the tree's ability to take up nutrients when there is a demand.
- Foliar applications of low-biuret urea (25-28 lbs N/acre) or phosphorous acid (2.6 quarts/acre of 26-28% P<sub>2</sub>O<sub>5</sub>) in late Dec.-early Jan. are known to increase flowering, fruit set, and fruit yield.
- Postbloom foliar applications of potassium nitrate or mono-potassium phosphate (8 lbs/acre K<sub>2</sub>O) in late April have been found to increase fruit size and yield.

### **Phosphorus**

- P applied to established groves had not leached but had accumulated in the soil at high levels and is available slowly so that P application may be reduced or omitted in established groves.

### **Micronutrients**

- Copper should not be included in fertilizers if Cu sprays are used and if the grove soil test show adequate Cu (5-10 lbs/acre).
- Molybdenum (Mo) deficiency occurs on soils that have been allowed to become very acid. Liming those soils should fix the problem.
- Foliar spray applications of micronutrients (Mn, Zn, Cu, B, and Mo) are more effective and economically practical than soil applications when included with post-bloom and summer foliar sprays after full expansion of the new flush.

### **Soil pH & liming**

- Soils should have a pH ranging from 5.5 to 6.5 with the higher values used for soils containing high Cu levels.
- Soil pH can be increased by application of either calcite or dolomite. Dolomite supplies both Ca and Mg. Therefore, the choice of dolomite would be more appropriate to supply Mg and have a good balance between Ca and Mg.

### **Overliming**

- Liming soils having a pH at or above 6 will be costly and not useful. In groves, where soils have adequate pH but low Ca levels, gypsum (CaSO<sub>4</sub>) can be used as a source of Ca without affecting the soil pH.
- Applying dolomite as a source of Mg is not recommended if the soil pH is in the desired range. Under these conditions, soil application of either magnesium sulfate (MgSO<sub>4</sub>) or magnesium oxide (MgO) and foliar application of magnesium nitrate (Mg(NO<sub>3</sub>)<sub>2</sub>) are effective for correcting Mg deficiency.

# SECC Agricultural Outlook

[http://www.agroclimate.org/forecasts/Agricultural\\_Outlook.php](http://www.agroclimate.org/forecasts/Agricultural_Outlook.php)

November 1, 2011

By **Clyde Fraisse**

## **La Niña Is Here Again!**

The El Niño-Southern Oscillation (ENSO) phenomenon is the biggest player in the game of year-to-year climate variability. El Niño and La Niña events tend to develop during April-June and tend to reach maximum strength during December-February. Typically they persist for 9 to 12 months. La Niña conditions take place when surface water temperatures in the tropical Pacific Ocean along the equator turns colder than normal. La Niña can be thought as the opposite of El Niño conditions, in which the same area of the Pacific is warmer than normal.

La Niña affects weather patterns in many areas of the world. In the case of the Southeast U.S.A. it usually brings a drier and warmer winter and spring (November through March). For Florida, central and lower Alabama, and central and southern Georgia rainfall may be 40 to 60 percent lower than normal and temperatures 3 to 4 degrees warmer than normal.

La Niña events may last more than one year, in fact, they do tend to last longer on average than El Niño events.

Examples of events that lasted longer than one year include the La Niñas of 1954-56 (extreme drought in the southeastern U.S.), 1973-75, and 1999-2001. This year is the second year of a La Niña pattern that started back in July

of 2010 and returned after a brief period of neutral conditions during the summer. Figure 1 shows average rainfall anomalies (Nov-Jan) observed during the 2nd year of La Niñas events in the past. Although La Niña events are never the same, it indicates that drier than normal conditions are generally observed in most of the southern U.S.A.

The current drought outlook for October 2011 through January of 2012 published by the NOAA Climate Prediction Center (CPC) confirms this trend signaling for drier conditions in most of the same areas.

### **Potential Impacts of La Niña Events on Crops**

**Winter Vegetables:** Tomato and green peppers generally yield more during La Niña years than during Neutral or El Niño years. Dry weather generally decreases fungal and bacterial diseases and help growers reduce the number of fungicide applications, however viruses caused by thrips (Tomato Spotted Wilt [TSW]) and white fly (Tomato Yellow Leaf Curl [TYLCV]) are problems. High nighttime temperatures (above 65°F) can be a problem for fruit setting. For more information on how to apply climate information for reducing tomato production risks check the following UF- Extension EDIS publication:

<http://edis.ifas.ufl.edu/ae269>

**Small Grains:** In South Carolina and Alabama, wheat usually performs better during La Niña years than El

Niño years. Wet seasons delay planting and affect crop yield potential.

Anaerobic condition caused by a water logged soil, during an El Niño year, reduces root growth and results in N and P deficiency.

The current drought outlook for October 2011 through January of 2012 published by the NOAA Climate Prediction Center (CPC) confirms this trend signaling for drier conditions in most of the same areas.

Temperate Fruits: Seasonal climate variability impacts deciduous fruit production mainly through changes in the satisfaction of dormancy that occurs by the accumulation of chilling hours (temperature at or below 45°F) and changes in the accumulation of heat units that promote flowering and fruit development. Also affected can be the extent of the threat from freeze damage during flower and fruit development, and the timing and severity of diseases and pests. La Niña conditions developed later this year and may not result in significant decrease in overall chill accumulation.

The dry weather during La Niña years is usually not conducive to fungal diseases such as Anthracnose and Botrytis fruit rots. In the case of strawberry, these are the two major diseases of concern. During La Niña expected drier conditions, regular applications of fungicides may not be needed as often to suppress these diseases, especially when moderately or highly resistant cultivars such as Strawberry Festival are grown. So it may be a good opportunity for growers to extend spray intervals and reduce

fungicide costs without a great risk of compromising their profits.

Winter annual broadleaf weeds may thrive under warm and dry conditions, and these weeds act as host plants for cat-facing insects (sucking bugs) of peaches. High populations of cat-facing insects have been documented in peach orchards where winter annual broadleaf weeds are allowed to grow.

Forestry: Warm and dry conditions associated with La Niña events may prompt managers to consider re-scheduling planting of drought vulnerable seedlings, reinforce existing control efforts of southern pine beetle, and delay the harvest of pine straw to retain soil moisture. La Niña also brings the potential for a very active wildfire season. Average acreage burned during La Niña years is often more than doubled as seen in 1998 and 2001. Extension publication: EDIS publication: Using Seasonal Climate Forecasting to Plan Forest Plantation Establishment:

<http://edis.ifas.ufl.edu/ae282>

For more information about of the potential effects of La Niña on our agricultural industry and on rainfall and temperature patterns in your county visit AgroClimate at

<http://www.agroclimate.org>

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# FLATWOODS CITRUS NEWSLETTER EVALUATION FORM

Please take a moment to rate the quality and usefulness of the information presented in the Flatwoods Citrus newsletter. **Please send back the form to:**

**Dr. Mongi Zekri**  
**University of Florida, IFAS**  
**Hendry County Extension Office**  
**P.O. Box 68**  
**LaBelle, FL 33975**

**or e-mail to [maz@ufl.edu](mailto:maz@ufl.edu) or fax to: 863 674 4636. Thank you for your input!!!**

**Please circle your answer**

- |   |   |                                    |    |              |
|---|---|------------------------------------|----|--------------|
| 1 | Did the information seem up to date and accurate?               | Yes                                | No | Uncertain    |
| 2 | Was the information delivered on time to be useful?             | Yes                                | No | Uncertain    |
| 3 | Was the information relevant to your situation?                 | Yes                                | No | Uncertain    |
| 4 | Was the information easy to understand?                         | Yes                                | No | Uncertain    |
| 5 | Have you had an opportunity to use the information?             | Yes                                | No | Uncertain    |
| 6 | Have you shared the information with someone else?              | Yes                                | No | Uncertain    |
| 7 | Overall, how do you feel about the Flatwoods Citrus Newsletter? |                                    |    |              |
|   | Satisfied   | Neither Satisfied Nor Dissatisfied |    | Dissatisfied |

8 **Do you have any suggestions that might improve the newsletter?**

**(Please write in any comments)**

9. How many years have you been using the Extension Service? \_\_\_\_\_ Years

10. What is your employment status?

- |   |  |   |
|---|--|---|
| <input type="checkbox"/> Grower             | <input type="checkbox"/> Chemical Industry | <input type="checkbox"/> Service Provider |
| <input type="checkbox"/> Production Manager | <input type="checkbox"/> Regulator         | <input type="checkbox"/> University       |
| <input type="checkbox"/> Consultant         | <input type="checkbox"/> Association       | Other _____                               |

We appreciate your reactions and the time you have given us. Thank you, and please contact us when we may be of service to you.

# Flatwoods Citrus

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

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Subscriber's Name: \_\_\_\_\_

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Fax: \_\_\_\_\_

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## **Racial-Ethnic Background**

\_\_ American Indian or native Alaskan

\_\_ Asian American

\_\_ Hispanic

\_\_ White, non-Hispanic

\_\_ Black, non-Hispanic

## **Gender**

\_\_ Female

\_\_ Male