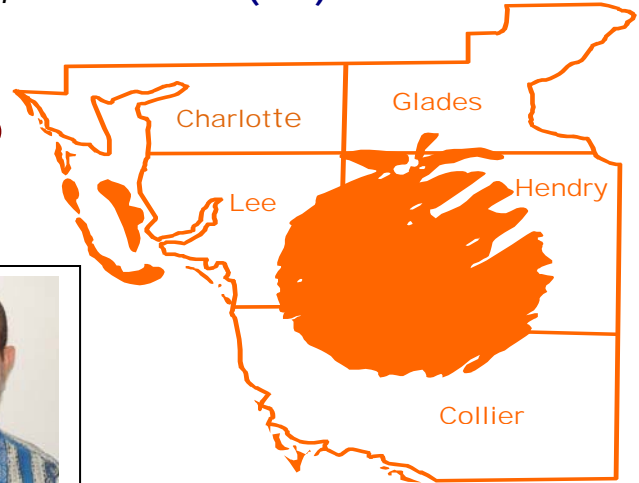


Hendry County Extension, P.O. Box 68, LaBelle, FL 33975 (863) 674 4092

# Flatwoods Citrus



**Vol. 19, No. 3**

**March 2016**

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



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**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/>**

# Mark your calendar and plan to attend

## 2016 ANNUAL FLORIDA CITRUS GROWERS' INSTITUTE

Date & Time: Tuesday, 5 April 2016, 8:00 AM – 3:35 PM

Location: Avon Park Campus of South Florida Community College

Coordinators: Citrus Extension Agents, UF-IFAS

**Agenda and information on registration is below.**

## The Twenty Sixth Annual Farm Safety Day

**Friday, 6 May 2016**

**Saturday, 7 May 2016**

### **AN IMPORTANT MESSAGE TO EMPLOYERS**

Safe and competent equipment operators are important to you as an employer. Our training has been designed to help your employees perform better, operate safely to prevent accidents, fulfill necessary training requirements and build pride in themselves and their farm company.

### **Registration Info**

**The deadline for registration is Friday, April 22<sup>nd</sup>, 2016.** It is the employer's responsibility to assure that the employee is present at 7:30 AM on Friday, May 6<sup>th</sup> **or** on Saturday, May 7<sup>th</sup> at the Immokalee IFAS Center, 2685 State Rd. 29 North, Immokalee, FL 34142 to receive their nametag.

**Don't wait. The number of trainings offered and attendance at each training is LIMITED. For each day, class size is limited to the first 80 Spanish-speaking and 20 English-speaking people.**



**Agenda and information on registration is below.**

# Certified Crop Adviser Educational Seminar and CEU Session

Date: Wednesday, April 13, 2016, Time: 7:45 a.m. – 6:45 p.m.

Refreshments and lunch will be provided.

Find below a program schedule for the event which includes tentative titles of speaker topics that will be presented.

This session is webcast to six centers- Gainesville, Lake Alfred, Balm, Immokalee, Ft. Pierce, Tavares as was done in the past. You may be able to pick the center that is most convenient to you.

To register, please use the following link and pick the ticket to the center of your choice. Please remember to print your confirmation and the receipt for your records. Early registration fee is \$100 per person payable through credit cards.

<https://www.eventbrite.com/e/ufifas-cca-training-april-2016-registration-21633525457>

UF/IFAS CCA Training April 2016 - [www.eventbrite.com](http://www.eventbrite.com)

Statewide FL CCA CEU sessions conducted by IFAS and video broadcast from and to five IFAS Centers locations, twice a year- Spring and Fall. Each session offers 10 CEUs in Soil & Water and Crop Management (Fall session) and Nutrient and Pest Management (Spring session) during a 10-hr session, starting at 7:45AM to 6:45PM. These sessions are generally scheduled for the second Wednesday of April and October every year. Over 80 CCAs participate in these sessions from Gainesville, Balm, Tavares, Lake Alfred, Immokalee and Ft. Pierce. Walk-in registration fee is \$120 and have to be paid only in checks payable to 'University of Florida'.

University of Florida/IFAS, Certified Crop Adviser CEU Session  
 Wednesday, 13 April 2016  
 Lake Alfred, Balm, Gainesville, Ft. Pierce, Tavares and Immokalee

COMPETENCY AREA	TOPIC	PRESENTER	ORIGINATING FROM	START TIME	CEUs
	Sign In; Introductory Remarks; Pre-test			7:50 AM	
<b>NUTRIENT MANAGEMENT</b>	SOIL AMENDMENTS AND BIOSTIMULANTS TO IMPROVE YOUR NUTRIENT MANAGEMENT	SHINSUKE AGEHARA	BALM	8:00 AM	1
	SOILS AND NUTRITION OF SUGARCANE IN FLORIDA	MABRY MCCRAY	BELLE GLADE	9:00 AM	1
	THE ROLE OF NUTRIENTS IN CITRUS PRODUCTION AND IMPACT ON HLB IN CITRUS	KELLY MORGAN	IMMOKALEE	10:00 AM	1
	2015 VEGETABLE AND AGRONOMIC CROP BMP MANUAL OVERVIEW	BILL BARTNICK	GAINESVILLE	11:00 AM	1
	<b>LUNCH 12:00 Noon</b>				
	NUTRIENT MANAGEMENT FOR SORGHUM ENERGY CROPPING SYSTEMS IN FLORIDA	JOHN ERICKSON	GAINESVILLE	12:30PM	1
<b>PEST MANAGEMENT</b>	INTEGRATED PEST MANAGEMENT RESOURCES FOR FLORIDA'S CCAs	NORM LEPLA	GAINESVILLE	1:30 PM	1
	WHEN, WHY AND HOW TO MANAGE THE ASIAN CITRUS PSYLLID	PHIL STANSLY	IMMOKALEE	2:30 PM	1
	MANAGING THRIPS AND THRIPS-VECTORED VIRUSES ON CROPS IN FLORIDA	JOE FUNDERBURK	QUINCY	3:30 PM	1
	DISEASE MANAGEMENT OF VEGETABLE CROPS: IPM CONCEPTS AND PRACTICE	MATHEWS PARET	QUINCY	4:30 PM	1
	WEED MANAGEMENT TOOLS FOR PLASTICULTURE VEGETABLE PRODUCTION	NATHAN BOYD	BALM	5:30 PM	1
	<b>Post-test</b>			6:30 PM	

Special Thanks to 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 or maz@ufl.edu



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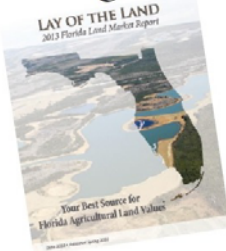
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# EL NIÑO/SOUTHERN OSCILLATION (ENSO) DIAGNOSTIC DISCUSSION

issued by

**CLIMATE PREDICTION CENTER/NCEP/NWS  
and the International Research Institute for Climate and Society**

11 February 2016

ENSO Alert System Status: **El Niño Advisory**

---

**Synopsis: A transition to ENSO-neutral is likely during late Northern Hemisphere spring or early summer 2016, with a possible transition to La Niña conditions during the fall.**

Indicative of a strong El Niño, sea surface temperature (SSTs) anomalies were in excess of 2°C across the east-central equatorial Pacific Ocean during January (Fig. 1). The Niño indices in the eastern Pacific declined, while Niño-3.4 and Niño-4 were nearly unchanged (Fig. 2). The subsurface temperatures in the central and eastern Pacific increased due to a downwelling Kelvin wave (Fig. 3), but toward the end of the month weakened again in association with the eastward shift of below-average temperatures at depth in the central Pacific (Fig. 4). Also, low-level westerly wind anomalies and upper-level easterly wind anomalies continued over much of the tropical Pacific. The traditional and equatorial Southern Oscillation Index (SOI) values remained negative but weakened relative to last month. Convection remained much enhanced over the central and east-central tropical Pacific and suppressed over Indonesia (Fig. 5). Collectively, these anomalies reflect the continuation of a strong El Niño.

Most models indicate that El Niño will weaken, with a transition to ENSO-neutral during the late spring or early summer 2016 (Fig. 6). Thereafter, the chance of La Niña conditions increases into the fall. While there is both model and physical support for La Niña following strong El Niño, considerable uncertainty remains. A transition to ENSO-neutral is likely during late Northern Hemisphere spring or early summer 2016, with a possible transition to La Niña conditions during the fall (click [CPC/IRI consensus forecast](#) for the chance of each outcome for each 3-month period).

El Niño has already produced significant global impacts and is expected to affect temperature and precipitation patterns across the United States during the upcoming months (the [3-month seasonal outlook](#) will be updated on Thursday February 18<sup>th</sup>). The seasonal outlooks for February – April indicate an increased likelihood of above-median precipitation across the southern tier of the United States, and below-median precipitation over the northern tier. Above-average temperatures are favored in the North and West, and below-average temperatures are favored in the southern Plains and along the Gulf Coast.

This discussion is a consolidated effort of the National Oceanic and Atmospheric Administration (NOAA), NOAA's National Weather Service, and their funded institutions. Oceanic and atmospheric conditions are updated weekly on the Climate Prediction Center web site ([El Niño/La Niña Current Conditions and Expert Discussions](#)). Forecasts are also updated monthly in the [Forecast Forum](#) of CPC's Climate Diagnostics Bulletin. Additional perspectives and analysis are also available in an [ENSO blog](#). The next ENSO Diagnostics Discussion is scheduled for 10 March 2016. To receive an e-mail notification when the monthly ENSO Diagnostic Discussions are released, please send an e-mail message to: [ncep.list.ens0-update@noaa.gov](mailto:ncep.list.ens0-update@noaa.gov).

---

Climate Prediction Center  
National Centers for Environmental Prediction  
NOAA/National Weather Service  
College Park, MD 20740



## Suggested Antibiotic Use Pattern for Huanglongbing (HLB; citrus greening) Management

*The information in this document is a suggested use pattern of antibiotics in Florida citrus. This is not an official University of Florida recommendation. Information based on crisis declaration of March 4, 2016. Document is invalid after the establishment of a Section 3 or 18 label.*

<b>Antibiotic Application Schedule</b>												
Application schedule should be adjusted based on harvest and flush timing <sup>1</sup> . Antibiotics should <b>NEVER</b> be applied during harvest. <b>ALWAYS</b> rotate.												
Citrus Type	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Early Season Varieties (Ex. Hamlin, Navel, Fallglo)		STP	OXY	STP			STP	OXY		X	X	X
Mid Season Varieties (Ex. Murcott, Pineapple, Midsweet)	X	X	X	STP	OXY	STP		OXY	STP	OXY		X
Late Season Varieties (Ex. Valencia)		OXY	X	X	X	X			STP	OXY	STP	
Grapefruit (Ex. Ray Ruby, Flame, Ruby Red)		STP	OXY	STP			STP	OXY		X	X	X

STP: streptomycin; OXY: oxytetracycline  
<sup>1</sup>apply with initiation of leaf flush

<b>Product Details</b>			
	<b>FireWall 50 WP™</b> (streptomycin)	<b>FireLine 17 WP™*</b> (oxytetracycline)	<b>Mycoshield®*</b> (oxytetracycline)
Preharvest Interval (days)	40	40	21
Maximum Number of Applications per Calendar Year	3	3	8
Minimum Retreatment Interval (days)	21	21	21
Re-entry Interval (hours)	12	12	12
Total amount of product per year	2.07 lbs product 1.36 lbs a.i.	4.50 lbs product 0.81 lbs a.i.	12.0 lbs product 2.04 lbs a.i.*
FRAC Group	25	41	41

\*not more than 2.04 lb a.i. (oxytetracycline) per season no matter product used

**Antibiotic programs do not replace Asian citrus psyllid management programs.**

- Antibiotics are only labeled for airblast ground sprays (no low volume applications)
- When mixing antibiotic with surfactant, agitation is required
- Alternate mode of action (MOA)

**THE LABEL IS THE LAW!**  
 Refer to label for additional information.  
 This guide does not supersede the label.

1. Megan M. Dewdney, associate professor, Department of Plant Pathology, Citrus Research and Education Center and James H. Graham, professor, Soil and Water Science Department, Citrus REC; UF/IFAS Extension; Gainesville, FL 32611.

<b>Suggested Product Amount Based on Volume<sup>1</sup></b>						
<b>Spray Volume<sup>2</sup></b>	<b>FireWall 50 WP™</b>		<b>FireLine 17 WP™</b>		<b>Mycoshield®</b>	
<b>(GPA)</b>	<b>ounces of product</b>	<b>pounds per active ingredient</b>	<b>ounces of product</b>	<b>pounds per active ingredient</b>	<b>ounces of product</b>	<b>pounds per active ingredient</b>
50	5.50	0.225	12.0	0.125	8.0	0.125
75	8.25	0.337	18.0	0.190	-	-
100	11.0	0.450	24.0	0.255	18.0	0.190
150	-	-	-	-	24.0	0.255

<sup>1</sup>do not apply at rates lower than is specified on the labels  
<sup>2</sup>application volume should be adjusted based on tree size



Created: March 2016

<b>Personal Protective Equipment for Applicators and Handlers</b>			
<b>Product</b> (EPA registration #)	<b>FireWall 50 WP™</b> (80990-3)	<b>FireLine 17 WP™</b> (80990-1)	<b>Mycoshield®</b> (55146-97)
<b>Long-sleeved shirt and long pants</b>	Yes	Yes	Yes
<b>Chemical-resistant gloves made of waterproof material</b>	Yes	Yes	Yes
<b>Shoes and socks</b>	Yes	Yes	Yes
<b>Protective eyewear</b>	Yes	Yes	Yes
<b>Respirator</b>	Yes <sup>1</sup>	Yes <sup>2</sup>	Yes <sup>2</sup>
<b>Application Method</b>	For worker protection concerns, applicators must be in enclosed cab or with headgear that ensures full coverage of the neck.		

<sup>1</sup>a particulate respirator with any N,R, or P filter, NIOSH approval prefix TC-84-A  
<sup>2</sup>dust/mist filtering respirator (MSHA/NIOSH approval number prefix TC-21C) or a NIOSH approved respirator with any N, R, P or HE filter

<b>Crop Site</b>
Citrus: Grapefruit, lemon, lime, orange, tangelo, tangerine, citrus citron, kumquat, and hybrids of these plus pummelo.

Do not use antibiotics in groves in which current practices include fertilization with animal manure. This restriction addresses concerns that antibiotic resistance could be transferred to *Escherichia coli* or other pathogenic bacteria in the feces.

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 U.S. Department of Agriculture, UF/IFAS Extension Service, University of Florida, IFAS, Florida A & M University Cooperative Extension Program, and Boards of County Commissioners Cooperating. Nick T. Place, dean for UF/IFAS Extension.

**PURPOSE OF THE INSTITUTE**

Citrus Greening or Huanglongbing (HLB) continues to impact all citrus production areas of Florida. The 2016 Florida Citrus Growers' Institute is an opportunity for Florida citrus growers to come together to learn about effective management of HLB and other challenging diseases affecting the industry. Topics this year include citrus tree root health, performance of rootstock and scions with HLB, Asian citrus psyllid management, and the use of plant antibiotics.

**CONTINUING EDUCATION UNITS**

Continuing Education Units (CEU's) will be offered for holders of restricted use pesticide licenses (RUP) and certified crop advisors (CCA). CEU's have been granted in the following categories: private applicator, agricultural tree crop and demonstration & research for RUP holders. CEU's have been requested for CCA's in the appropriate CEU categories.

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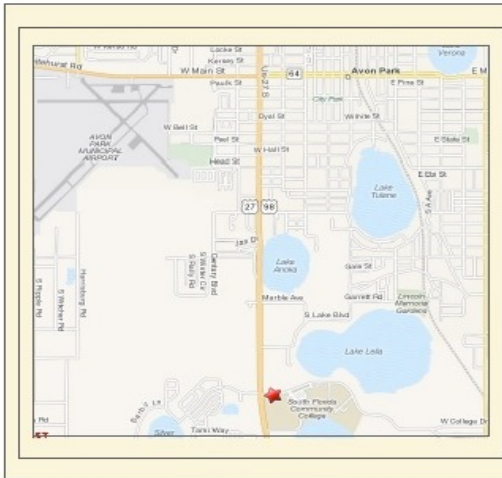
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**DIRECTIONS**

The South Florida State College is located at 600 West College Drive in Avon Park.

From the South: Take U.S. Hwy. 27/98 north towards Avon Park, turn east onto W. College Drive and follow the signs to the Theatre.

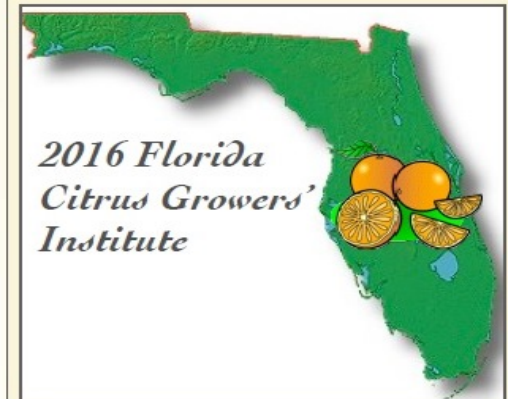
From the North: Take U.S. Hwy. 27/98 south to Avon Park, continue south to W. College Drive, turn east onto W. College Drive and follow the signs to the Theatre.

From the East: Take U.S. Hwy. 98 north to where U.S. Hwy. 27/98 merge south of Sebring. Proceed on U.S. Hwy. 27/98 north towards Avon Park, turn east onto W. College Drive and follow the signs to the Theatre.

From the West: Take S.R. 64 east to Avon Park, turn south on U.S. Highway 27/98 to W. College Drive, turn east onto W. College Drive and follow the signs to the Theatre.

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# FLORIDA CITRUS GROWERS' INSTITUTE



Conducted by

University of Florida, IFAS Extension  
Citrus Research and Development  
Foundation

South Florida State College  
Theatre for Performing Arts  
Avon Park, Florida  
April 5, 2016

# 2016 Florida Citrus Growers' Institute

**PROGRAM AGENDA**  
**TUESDAY, APRIL 5, 2016**

8:00 AM - Registration

8:30 AM - Welcome and Introductions

*Mr. Gary England, CES, Tavares, FL &  
Dr. Michael Rogers, UF/IFAS CREC*

**BUILDING A HLB TOLERANT CITRUS TREE**

*Moderators: Mr. Chris Oswalt, CES, Bartow, FL*

8:45 AM - How much can the rootstock help to survive with HLB? - *Dr. Kim Bowman, USDA/ARS*

9:15 AM - Progress on Developing Scions and Rootstocks for an HLB-Endemic Florida - *Dr. Jude Grosser, UF/IFAS CREC*

9:45 AM - Scion and Rootstock Planting Choices: Questions, Considerations, and Opportunities - *Dr. Fred Gmitter, UF/IFAS CREC*

10:15 AM - Break

10:30 AM - Developing Scion Cultivars with HLB Tolerance and Resistance - *Dr. Ed Stover, USDA/ARS*

**PSYLLID MANAGEMENT AND ECONOMICS OF CHMA'S**

*Moderators: Dr. Steve Futch, CES UF/IFAS CREC*

11:00 AM - Integrated Management of Asian Citrus Psyllid - *Dr. Jawwad Qureshi, UF/IFAS SWFREC*

11:30 AM - Comparison of CHMAs Economic Performance - *Dr. Ariel Singerman, UF/IFAS CREC*

12:00 PM - Lunch

**IMPROVING ROOT HEALTH IN HLB INFECTED CITRUS TREES**

*Moderators: Dr. Mongi Zekri, CES, LaBelle, FL*

1:00 PM - Fertigation and Soil Acidification Sustain Root Density of HLB-Infected Trees in Florida Citrus Groves - *Dr. Jim Graham, UF/IFAS CREC*

1:30 PM - Rootstocks and *Phytophthora* Management: Implications for Root Health - *Dr. Evan Johnson, UF/IFAS CREC*

**ANTIBIOTICS IN DISEASE MANAGEMENT**

*Moderators: Dr. Cami McAvoy, CES, Bushnell, FL*

2:00 PM - Lessons Learned on the Use of Antibiotics in Fruit Tree Disease Control - *Dr. Megan Dewdney, UF/IFAS CREC*

2:30 PM - Commercial Grove Studies on the Effectiveness of FireLine™ and FireWall™ on HLB Symptoms in Florida Citrus - *Dr. Robert Shatters, USDA/ARS*

3:00 PM - Adjourn

CES: County Extension Service

CREC: Citrus Research & Education Center, Lake Alfred, FL

FDACS/DPI: Florida Department of Agriculture & Consumer Services/ Division of Plant Industry, Gainesville, FL

SWFREC: Southwest Florida Research & Education Center, Immokalee, FL

UF/IFAS: University of Florida, Institute of Food and Agricultural Sciences

USDA/ARS: United States Department of Agriculture/Agricultural Research Service, Ft. Pierce, FL

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**FLORIDA CITRUS GROWERS' INSTITUTE**

**April 5, 2016**

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Phone: \_\_\_\_\_

Email: \_\_\_\_\_

Please send registration to: Gail Crawford, Polk County Extension Service, P.O. Box 9005, Drawer HS03, Bartow, FL 33851.

By April 1, 2016

By phone: 863-519-1042, Fax: 863-534-0001, email: [dorothy@ufl.edu](mailto:dorothy@ufl.edu) or

online at: <https://www.picatic.com/institute2016>

# The Twenty Sixth Annual Farm Safety Day

Friday, 6 May 2016  
Saturday, 7 May 2016

## AN IMPORTANT MESSAGE TO EMPLOYERS

Safe and competent equipment operators are important to you as an employer. Accidents, which cause damage, injury or death to employees, equipment and crops, are costly. We believe all types of accidents can be reduced with proper employee training. Our training has been designed to help your employees perform better, operate safely to prevent accidents, fulfill necessary training requirements and build pride in themselves and their farm company.

### Certificates

The 2016 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 Friday, April 22<sup>nd</sup>, 2016.** It is the employer's responsibility to assure that the employee is present at 7:30 AM on Friday, May 6<sup>th</sup> **or** on Saturday, May 7<sup>th</sup> at the Immokalee IFAS Center, 2685 State Rd. 29 North, Immokalee, FL 34142 to receive their nametag. Upon arrival each participant will check in at the registration table and receive a packet containing their nametag, instructions (in both English and Spanish) session handouts, an evaluation form, rodeo cap and pencil. They will be directed to their respective course sessions.

Please give us the names of those who will be attending our 26<sup>th</sup> Farm Safety Day on **Friday, 6 May or Saturday, 7 May 2016 (please select the date)**. The cost is **\$25.00** per person, which will include educational sessions, handouts, pencils, refreshments, lunch, and a cap.

Make checks payable to: SW Florida Citrus Advisory Committee

Mail registration and checks to:  
University of Florida, IFAS, SWFREC  
Attention: Barbara Hyman  
2685 State Rd. 29 North  
Immokalee, FL 34142

Or fax registration to: 239 658 3403  
Deadline is Friday, April 22, 2016

**Don't wait. The number of trainings offered and attendance at each training is LIMITED. For each day, class size is limited to the first 80 Spanish-speaking and 20 English-speaking people.**

# TWENTY SIXTH ANNUAL SAFETY DAY

**Friday, 6 May 2016**  
**Saturday, 7 May 2016**

Location: University of Florida, IFAS, SWFREC  
2685 State Rd. 29 North  
Immokalee, FL 34142

## **SCHEDULE:**

7:30-8:10	Check In, Coffee, Juice, Refreshments, Door Prizes
8:10-9:00	Session 1 (Begin sessions)
9:00-9:10	Break (change session, door prizes)
9:10-10:00	Session 2
10:00-10:10	Break (change session, door prizes)
10:10-11:00	Session 3
11:00-11:10	Break (change session, door prizes)
11:10-12:00	Session 4
12:00-1:30	Lunch and Adjourn

## **Sessions:**

1. Personal Protective Equipment
2. Preventing Heat Stress
3. Mixing and Loading Pesticide Safety
4. Driving Agricultural Equipment/Vehicles on Public Roads

## The 2016 FARM SAFETY DAY REGISTRATION FORM

Please give us the names of those who will be attending our 25<sup>th</sup> Farm Safety Day on **Friday, 6 May or Saturday, 7 May 2016** at the Immokalee IFAS Center, 2685 State Rd. 29 North, Immokalee, FL 34142. The cost is **\$25.00** per person, which will include educational sessions, handouts, refreshments, lunch, and a cap.

**Make checks payable to:**  
SW Florida Citrus Advisory Committee

**Mail registration and checks to:**  
University of Florida, IFAS, SWFREC  
Attention: Barbara Hyman  
2685 State Rd. 29 North  
Immokalee, FL 34142

Or fax registration to: 239 658 3403  
Deadline is Friday, April 22, 2016

Company Name:

Administrative Contact Person:

E-mail address:

Mailing Address:

Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_ County: \_\_\_\_\_

Please list the employees who will be attending our safety training and please check their language preference\*. If there is not enough space to fill in all attendants, please attach an additional sheet with the necessary information.

<u>Name</u>	<u>Friday or Saturday</u>	<u>English</u>	<u>Spanish</u>	<u>Name</u>	<u>Friday or Saturday</u>	<u>English</u>	<u>Spanish</u>
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**\*Please Note: It is very important that we know the date (Friday, 6 May or Saturday, 7 May 2016) and the language capabilities for each attendee.**  
**Next to each attendee's name please mark in which language they are more fluent.**  
 If there are any questions, please contact **Barbara Hyman ([hymanb@ufl.edu](mailto:hymanb@ufl.edu)) at 239 658 3400.**  
**Don't wait. The number of trainings offered and attendance at each training is LIMITED. Don't wait. For each day, class size is limited to the first 80 Spanish-speaking and 20 English-speaking people.**

## Sponsorship for the Annual Farm Safety Day



The Southwest Florida Farm Safety Day has been conducted annually since 1991. The program is strongly supported by area citrus, vegetable, sugarcane, and sod growers. Southwest Florida agricultural employers collectively send employees annually to receive training on various safety-related topics. The 2016 Annual Farm Safety Day will be held on **Friday, 6 May** and **Saturday, 7 May 2016** and will feature a very comprehensive farm safety program.

We ask you to consider sponsorship of the 2016 Annual Farm Safety Day to help make it a success. Any profits generated will support extension and other farm safety related programming, such as WPS training, agent in-service-training, teaching tools and related equipment, and travel for extension agents to approved conferences and meetings.

Annual expenses are estimated to be approximately \$3,000. Costs include breakfast, lunch, refreshments, handouts, hats, door prizes, and other supplies. Participants receive certificates of attendance and employers receive certificates of training that can be placed into the employee's file. The highlight of the Farm Safety Day is farm/equipment safety education.

We hope you will be able to help sponsor the 2016 Annual Farm Safety Day. We have enclosed a sponsorship form for your use. Please return the form and your sponsorship check as indicated on the form no later than April 30, 2016.

Thank you in advance for your generous support!

Dr. Mongi Zekri  
Farm Safety Day Coordinator  
Multi-County Citrus Agent, SWF  
Hendry County Extension Office  
P.O. Box 68  
LaBelle, FL 33975





2016 Annual Farm Safety Day

WHEN: **Friday, 6 May and Saturday, 7 May 2016**

WHERE: Southwest Florida Research & Education Center, Immokalee

AUDIENCE: Anticipate 150 farm workers, managers, equipment operators, and crew leaders from the 5-county area of Southwest Florida.

COST: Sponsorships: \_\_\_\_\_ \$300 Platinum  
\_\_\_\_\_ \$200 Gold  
\_\_\_\_\_ \$100 Silver

*Sponsorship goes to support awards, expenses, and other extension programs.*

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**SPONSORSHIP REGISTRATION FORM**

Business \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ Zip Code: FL \_\_\_\_\_

Contact Person: \_\_\_\_\_

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

Check here if you are a \$300 sponsor and desire an exhibit space.

*Please make checks payable to: SW Florida Citrus Advisory Committee*

*Mail to:*

**Dr. Mongi Zekri  
Multi-County Citrus Agent  
Hendry County Extension Office  
PO Box 68  
LaBelle, FL 33975-0068**

# NUTRITION OF CITRUS TREES

Fertilizer management should include calibration and adjustment of fertilizer spreaders, booms, pumps, or irrigation systems to accurately deliver fertilizer rates and place fertilizers within the tree rootzone. To increase fertilizer efficiency, soil and leaf analysis data should be studied and taken into consideration when generating a fertilizer program and selecting a fertilizer formulation. Dry fertilizer application should be split into 3 to 4 applications per year with a complete balanced fertilizer. For mature trees, the highest nutrient requirement extends from late winter through early summer. This coincides with flowering, heavy spring flush, fruit set, and fruit development and expansion. For best fresh fruit quality, nutritional requirements, particularly nitrogen (N), should decrease late in the summer and fall. Based on tree demands, 2/3 to 3/4 of the yearly fertilizer amount should be applied between February and June. In warm areas such as southwest Florida where tree growth can continue certain years during the winter, fertilizer applications should also be made in the fall to satisfy vegetative growth demand. However, fall fertilizer applications may sometimes delay fruit color development and fruit maturity for early and mid-season cultivars. For more information, go to **“Nutrition of Florida Citrus Trees, 2nd Edition”** By Thomas A. Obreza and Kelly T. Morgan <http://edis.ifas.ufl.edu/pdffiles/SS/SS47800.pdf>

## IFAS fertilizer guidelines for nonbearing citrus trees

Year in grove	Lb N/tree/year (range)	Lbs Fertilizer/tree/year (range)		Lower limit of application frequency	
		6-6-6	8-8-8	Dry	Fertigation
1	0.15 – 0.30	2.5-5.0	1.9-3.8	6	10
2	0.30 – 0.60	5.0-10.0	3.8-7.5	5	10
3	0.45 – 0.90	7.5-15.0	5.6-11.3	4	10

## IFAS fertilizer guidelines for bearing citrus trees (4 years and older)

Oranges	Grapefruit	Other varieties	Lower limit of application frequency	
Lbs N/acre/year (range)			Dry	Fertigation
120 - 200	120 - 160	120 - 200	3	10

Rates up to 220 lbs/acre may be considered for orange groves producing over 500 boxes/acre and up to 170 lbs/acre for grapefruit groves producing over 600 boxes/acre. Young trees planted on previously uncropped soils should receive fertilizer containing the following ratio of elements: nitrogen-1, phosphorus-1, potassium-1, magnesium-1/5, manganese-1/20, copper-1/40, and boron-1/250.

# For more information on citrus nutrition, get to the following EDIS publications:

## [Increasing Efficiency and Reducing Costs of Citrus Nutritional Programs](#)

Mongi Zekri, Thomas Obreza and Arnold Schumann  
<http://edis.ifas.ufl.edu/SS442> [pdf]

## [Irrigation, Nutrition, and Citrus Fruit Quality](#)

Mongi Zekri, Thomas A. Obreza and Robert Koo  
<http://edis.ifas.ufl.edu/SS426> [pdf]

## [Fertigation Nutrient Sources and Application Considerations for Citrus](#)

Brian Boman and Tom Obreza  
<http://edis.ifas.ufl.edu/CH185> [pdf]

## [Citrus Fertilizer Management on Calcareous Soils](#)

Thomas A. Obreza, Mongi Zekri, and David V. Calvert  
<http://edis.ifas.ufl.edu/CH086> [pdf]

Boron and chlorine for citrus trees. UF Coop Ext. Ser.

Zekri, M. and T.A. Obreza.  
<http://edis.ifas.ufl.edu/pdffiles/SS/SS61900.pdf>

Molybdenum and nickel for citrus trees. UF Coop Ext. Ser.  
Zekri, M. and T.A. Obreza.  
<http://edis.ifas.ufl.edu/pdffiles/SS/SS61800.pdf>

Iron and copper for citrus trees. UF Coop Ext. Ser. Zekri, M. and T.A. Obreza.

<http://edis.ifas.ufl.edu/pdffiles/SS/SS61700.pdf>

Manganese and zinc for citrus trees. UF Coop Ext. Ser.

Zekri, M. and T.A. Obreza.  
<http://edis.ifas.ufl.edu/pdffiles/SS/SS61600.pdf>

Nitrogen (N) for citrus trees. UF Coop Ext. Ser.

Zekri, M. and T.A. Obreza.  
<http://edis.ifas.ufl.edu/pdffiles/SS/SS58000.pdf>

Phosphorus (P) for citrus trees. UF Coop Ext. Ser.

Zekri, M. and T.A. Obreza.  
<http://edis.ifas.ufl.edu/pdffiles/SS/SS58100.pdf>

Potassium (K) for citrus trees. UF Coop Ext. Ser.

Zekri, M. and T.A. Obreza.  
<http://edis.ifas.ufl.edu/pdffiles/SS/SS58300.pdf>

Magnesium (Mg) for citrus trees. UF Coop Ext. Ser.

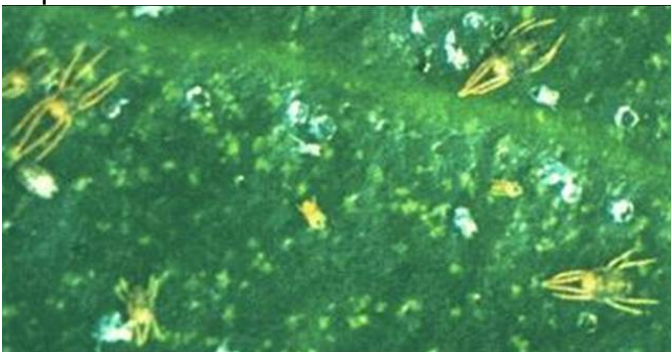
Zekri, M. and T.A. Obreza.  
<http://edis.ifas.ufl.edu/pdffiles/SS/SS58200.pdf>

Calcium (Ca) and sulfur (S) for citrus trees. UF Coop Ext. Ser.

Zekri, M. and T.A. Obreza.  
<http://edis.ifas.ufl.edu/pdffiles/SS/SS58400.pdf>

## Spider Mites

The Texas citrus mite is the predominant species in most citrus groves throughout the state. The citrus red mite is usually second in abundance, but in some nursery operations it is the predominant species. The Texas citrus and citrus red mites occur on citrus throughout the year and usually are most abundant in groves during the dry season. They are found most commonly on the upper leaf surface of recently mature flush, and all stages of the mites orient along the mid-vein. As populations increase, they move to leaf margins and fruit. Spider mites feed primarily on mature leaves and differ from rust mites by feeding beneath the epidermal layer of cells. They are capable of removing cellular contents, causing cell destruction and reducing photosynthesis. Mesophyll collapse and leaf drop can result when trees are stressed by high spider mite infestations in combination with sustained dry, windy conditions that may occur in the late fall, winter or early spring months. When populations of Texas citrus mite or citrus red mites are high, they will also feed on developing fruit. Spider mites prefer dry weather and low relative humidities in the range of 30 to 60% and generally do not pose a sustained problem in the higher humidity conditions that occur between June and September.



Populations of Texas citrus and citrus red mites aggregate among leaves within and between citrus trees.

Spider mites are suppressed to low densities by several species of predacious mites, insects, and entomopathogens in some groves.

However, when populations averaging 5 to 10 motile spider mites per leaf develop between September and May, it would be reasonable to apply a miticide, especially if the trees are stressed. However, infestations comprised predominantly of adults, particularly males, are in decline and would not require control. Adult mites are recognized by their large size relative to immatures and females distinguished by their round shape and shorter legs compared to males.

Need for controlling spider mites is based on temperature and humidity conditions, spider mite population levels, tree vigor, and time of the year. Petroleum oil provides some ovicidal activity against spider mite eggs. None of the other miticides provide ovicidal activity, and their residual activity must be sufficiently long-lasting to kill subsequently emerging larvae.

### Application of Miticides

Selection of a miticide should be based on the target pests to be controlled, avoiding risks of phytotoxicity, products that will be tank mixed, the time of year, treatment to harvest interval, and prior use of a product. All miticides except petroleum oil should be used only once a year to minimize resistance development. For example, dicofol can be effectively used for spider mite or rust mite control during the supplemental early spring or postbloom intervals. The product is most effective when applied at ONE of these times. Conversely, Comite would be recommended in the fall or supplemental late fall intervals. Vendex is effective in one of the following four periods: supplemental spring, postbloom, fall, or supplemental fall periods. Petroleum oil spray applications can be effectively applied during the postbloom, summer, or fall intervals. Sulfur is included since it has a short treatment to harvest interval and provides a highly effective means of cleaning up rust mite infestations prior to harvest when needed. Use of sulfur should be minimized given its toxic effects on several beneficial arthropods.

## Recommended Chemical Controls

### READ THE LABEL.

TO MINIMIZE RISK OF RESISTANCE, DO NOT APPLY A SPECIFIC MITICIDE MORE THAN ONCE PER ACRE PER SEASON OTHER THAN PETROLEUM OIL.

### **Control Thresholds and Appropriate Sample Sizes for 10 Acres**

If the control threshold is:	Sample size (Sample trees should be uniformly scattered across a 10-acre block. Do not sample adjacent trees.)
5 mites/leaf	Examine 4 leaves/tree from 6 trees/area from 4 areas/10 acres = 96 leaves on 24 trees/10 acres
8 mites/leaf	Examine 4 leaves/tree from 6 trees/area from 3 areas/10 acres = 72 leaves on 18 trees/10 acres
10 mites/leaf	Examine 4 leaves/tree from 5 trees/area from 2 areas/10 acres = 40 leaves on 10 trees/10 acres
15 mites/leaf	Examine 4 leaves/tree from 4 trees/area from 2 areas/10 acres = 32 leaves on 8 trees/10 acres

**TABLE 2. CITRUS MITICIDE SELECTION.\***

Supplemental (early Spring)	Post Bloom	Summer	Fall	Supplemental Fall
--	--	Agri-mek + oil	--	--
--	--	--	Comite	Comite
Envidor	Envidor	Envidor	Envidor	Envidor
--	Petroleum oil	Petroleum oil	Petroleum oil	--
--	--	--	Sulfur	Sulfur
--	--	Micromite	Micromite	--
--	--	--	Nexter	Nexter
Movento	Movento	Movento	--	--
Vendex	Vendex	--	Vendex	Vendex

\*Except for petroleum oil, do not use the same miticide chemistry more than once a year.

**For more information and details, go to:**

**Florida Citrus Pest Management Guide: Rust Mites, Spider Mites, and Other Phytophagous Mites at:**

**<http://www.crec.ifas.ufl.edu/extension/pest/PDF/2015/Rust%20Mites.pdf>**

# 10 health benefits of drinking orange juice

By: [Emily Lunardo](#) | [Functional Foods](#) |



Orange juice is a popular morning time beverage, as it's not only refreshing but offers much nutritional value, too. Oranges and orange juice are a great snacking option because they are low in calories and packed with nutrients that offer countless health benefits.

Oranges contain over 170 different phytochemicals and over 60 flavonoids, which are known to have anti-inflammatory and antioxidant effects. So how exactly do these phytochemicals and flavonoids benefit you? Well, the list below will definitely make you consider consuming more oranges and orange juice on a regular basis.

## [Health benefits of drinking orange juice](#)

### **#1 Source of vitamin C**

You may be familiar with the benefits of vitamin C to ward off a cold, but vitamin C is much more important than just that. Vitamin C is best absorbed by the body through food and beverage form, as it cannot be synthesized by the human body. Two glasses of orange juice a day

can increase vitamin C concentration within your body by 40 to 64 percent.

Vitamin C is beneficial as it helps fight off free radicals that can contribute to early aging and helps the absorption of other essential nutrients as well, including iron and calcium.

### **#2 Immune system boost**

To continue our discussion of vitamin C, orange juice and its nutritional content help boost the immune system. Vitamin C is a powerful antioxidant that helps provide the immune system with a much needed boost, all the while fighting off free radicals that can damage the immune system lowering its ability to tackle the illness.

### **#3 Source of fiber**

When you think of fiber, you probably think of grains, but believe it or not orange juice comes with a high fiber content, which is useful for bowel regularity and cholesterol levels.

One large orange contains 18 percent of your daily recommended fiber intake.

### **#4 Prevention of kidney stones**

Kidney stones are well known for being a highly painful condition, so if you want to ward them off, it's best that you get sipping on some orange juice. Orange juice contains citric acid and citrates, which are believed to help reduce the risk of kidney stones. Furthermore, potassium citrate is often prescribed to kidney stone patients as treatment and the citrates found in oranges have been found to have similar effects.

### **#5 Improved blood circulation**

Our muscles, organs, and basically everything in our bodies require a blood supply in order to function properly. But if blood isn't circulating, then our internal

parts can't receive the nourishment they need.

Oranges have a high folate count, which is necessary for the creation of DNA and new cell growth. Folate also protects cells from damage and mutation and wards off free radicals.

Folate is also necessary in the formation of new red blood cells, along with stimulating blood flow to extremities. So if you have cold hands and feet, consuming more orange juice may be a simple fix.

### **#6 Reduced inflammation**

Normally, inflammation is the body's response to stimuli as a form of protection, but inflammation has a negative side as well, which can lead to pain and other complications. Citrus fruits in general have been hailed as anti-inflammatory agents and consuming citrus can help ward off metabolic syndrome that can lead to complications such as type 2 diabetes.

Orange juice can help reduce inflammation all the while protecting the heart – which can save you from chronic conditions.

### **#7 Balanced blood pressure**

There are many components to lowering blood pressure. Reducing salt is one of them. Another way to lower blood pressure is to increase potassium intake – found in abundance in orange juice.

Other studies have shown that components found in orange juice can help activate small blood vessels, helping reduce overall blood pressure, along with reducing the risk of cardiovascular events, too.

### **#8 Improved cholesterol**

We briefly mentioned that orange juice's fiber content can help aid with cholesterol, but there is another mechanism in oranges at work – still not fully understood – that has been shown to help improve cholesterol numbers. What we do know is, cholesterol levels can have a large impact on heart health and overall health, so until science truly figures out the why and how, it's safe to say that consuming orange juice in the meantime is a good daily practice to control your cholesterol.

### **#9 Radiant skin**

Orange juice is packed with antioxidants – this so far has been made quite clear – and these antioxidants can also leave you with radiant skin. Antioxidants fight off free radicals, and those found in orange juice can protect your skin from sun damage and pollution, prevent wrinkles, and improve overall skin texture.

Additionally, vitamin C plays a role in the formation of collagen, which gives our skin that youthful look. Therefore, drink up for some beautiful-looking skin!

### **#10 Improved heart health**

We already mentioned quite a bit of heart health benefits of orange juice, including boosting blood circulation, lowering cholesterol, and improving blood pressure. It is important to keep all of these factors at healthy levels as they can affect your heart health. Unmanaged cholesterol and blood pressure put added stress on the heart, increasing the risk of cardiovascular disease and other cardiac events. Oranges have all the right ingredients to help protect your heart overall.

# *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: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_

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

E-mail: \_\_\_\_\_

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## **Racial-Ethnic Background**

American Indian or native Alaskan

Asian American

Hispanic

White, non-Hispanic

Black, non-Hispanic

## **Gender**

Female

Male