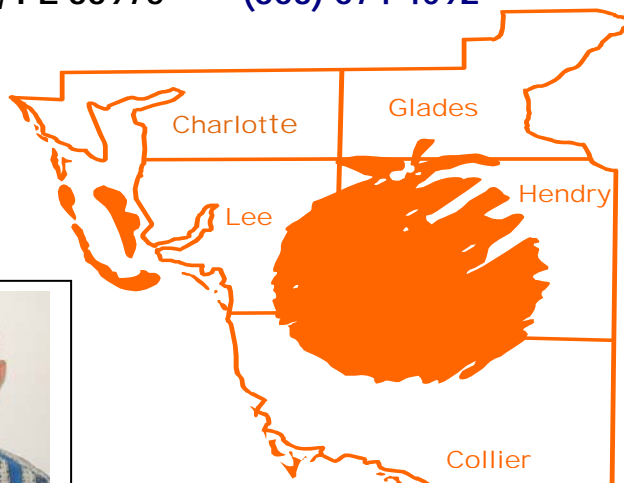


# Flatwoods Citrus



**Vol. 16, No. 3**

**March 2013**

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



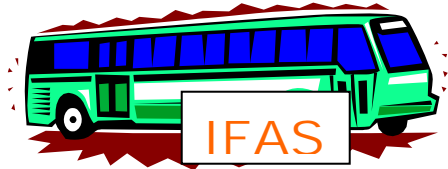
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**Previous issues of the Flatwoods Citrus newsletter can be found at:**  
<http://citrusagents.ifas.ufl.edu/agents/zekri/index.htm>  
<http://irrec.ifas.ufl.edu/flcitrus/>

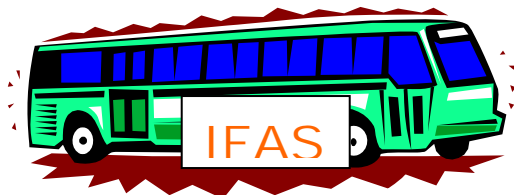
# I M P O R T A N T    E V E N T S

## COLLIER COUNTY EXTENSION AG TOUR



**Wednesday, 20 March 2013**  
**For more information or to sign up,**  
**call Robert Halman at 239 353 4244**

## HENDRY COUNTY EXTENSION AG TOURS



**Saturday, 23 March 2013**  
**For more information or to sign up,**  
**call Debra at 863 674 4092**

## ANNUAL FLORIDA CITRUS GROWERS' INSTITUTE

Date & Time: Tuesday, 2 April 2013, 8:00 AM – 3:45 PM

Location: Avon Park Campus of South Florida Community College

Pre-registration is required. All information is attached (pages 15-16).

Farm Safety Day, Saturday, May 18, 2013, 7:30 AM – 1:30 PM

Location: Southwest Florida REC (Immokalee)

The 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. **WPS cards will be issued this year too.**

**Don't wait. The number of trainings offered and attendance at each training is LIMITED. Class size is limited to the first 150 people.**

**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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# PLANT GROWTH REGULATORS (PGRs)

Plant growth regulator sprays can provide significant economic advantages to citrus growers when used in appropriate situations. Many citrus growers routinely use PGRs to enhance crop profitability. Depending on variety and timing, PGRs may improve fruit set, increase fruit size by reducing cropload, extend the harvest season by delaying rind aging, and reduce preharvest fruit drop. Excessive rates, improper timings, untested surfactants or tank mixes, and inappropriate environmental conditions can result in phytotoxicity, erratic results, and/or greatly reduced cropping. Growers are urged to become familiar with PGRs through application to small plots before treating significant acreage. To avoid drift onto susceptible crops in surrounding areas, products containing 2,4-D (2,4-Dichlorophenoxyacetic acid) have stringent requirements for application conditions. **READ THE LABEL.** Consult with your County Extension Office.



Since PGRs function by directly influencing plant metabolism, plant response can vary considerably with concentration, making sprayer calibration and accurate material measurement especially important. Studies show that variability in spray deposition increases as spray volume is reduced below 250 gallons/acre in mature citrus groves. At lower

water rates, canopy closest to the sprayer manifold tends to retain much more material than other plant surfaces. Because material concentration is especially important in PGR use, water volumes below 125 gallons/acre are not generally recommended.

Unlike most agrichemicals applied to crop, efficacy of PGRs depends on entry of materials into plant tissues. Uptake is influenced by a number of factors: amount of PGR applied, concentration of PGR, presence of surfactants, solution pH, environmental conditions during and after application, foliage condition, and plant stress level. Application of PGRs is recommended only on healthy citrus blocks. Even when properly applied, some PGRs may cause leaf curling, especially when sprayed on young leaves.

**GIBBERELIC ACID (GA<sub>3</sub>)** is recommended to be used on citrus hybrids that are weakly parthenocarpic and without sufficient cross-pollination to improve fruit set. Applied from full bloom to two-third petal fall, GA can effectively set and produce an excellent crop of seedless Robinson, Nova, Orlando, Minneola, or other self incompatible mandarin hybrids. Use Gibberellic acid (GA<sub>3</sub>, 4.0% liquid concentrate) at the rate of 10-20 oz/acre. Products marketed include: Pro-Gibb, GibGro, and Gibbex. Because material concentration is important in plant growth regulators, water volumes below 125 gallons/acre are not recommended. Do not use in water above pH 7.5 because uptake will be reduced. Care should also be exercised in not exceeding the recommended GA dosage or concentration because it can cause severe leaf drop.

**READ THE LABEL**

## EFFECT OF WATER pH ON PEST-CONTROL MATERIALS

A possible reason for lack of control of a pesticide material may have to do with the pH of the spray solution. The pH scale ranges from 0 to 14. A pH value below 7 is acidic, whereas a pH value above 7 is basic, or alkaline. A pH of 7 is considered neutral.

Many common insecticides and miticides are susceptible to breakdown if the pH of the water is not within an acceptable range. When the pH is greater than 7, a process known as alkaline hydrolysis occurs. Alkaline hydrolysis is a degradation process in which the alkaline water breaks apart insecticide or miticide molecules, which may then reassemble with other ions. These new combinations may not have any insecticidal or miticidal properties.

Insecticides and miticides are more susceptible to alkaline hydrolysis than fungicides and herbicides. Many insecticides and miticides degrade under alkaline conditions. For example, Malathion and Kelthane are very sensitive, degenerating within a few hours after being diluted in alkaline water. In general, the carbamate and organophosphate chemical classes (for example, Sevin and Lorsban) are more susceptible than chlorinated hydrocarbons or pyrethroids (for example, Lindane or Talstar, respectively).

Higher temperatures can increase the rate of insecticide degradation. Alkaline hydrolysis occurs more rapidly when temperatures are high.

The ways to avoid water pH problems include:

1. Follow manufacturer directions on the desired water pH. The ideal pH range for most insecticides and miticides is between 5.5 and 6.0.
2. Regularly test the pH of water because it can change from season to season.
3. Apply insecticides and miticides as soon as possible after mixing.
4. Don't leave insecticides or miticides sitting in a spray tank for an extended period of time.
5. Adjust water pH with buffers or water-conditioning agents. Buffers or water-conditioning agents are compounds that reduce alkaline hydrolysis, and adjust the pH of the spray solution to maintain it within a safe and efficient pH range.



## WATER QUALITY AFFECTS HERBICIDE EFFICACY

Water is the primary carrier for pesticide applications. The chemistry of water added to the spray tank greatly impacts herbicide effectiveness.

**Weak acids.** Acids are compounds that release  $H^+$  ions when dissolved in water. Weak acids are compounds that release  $H^+$  ions, but just slightly. Postemergence herbicides that are weak acids include: Glyphosate, Paraquat (Gramoxone), Sethoxydim (Poast), and 2,4-D.

Herbicides that are weak acids partially dissociate (split into pieces) when mixed in water. The major portion, which does not dissociate is more readily absorbed by plant foliage than the portion that dissociate. How much the herbicide dissociates depends primarily on pH of water in the spray tank. Dissociated herbicide molecules have a negative charge. After being dissociated, herbicides might remain as negatively charged molecules, or they might bind with other positively charged cations.

**Water pH.** Water pH for Florida water is alkaline or basic (pH 7.3 to 8.0). Acidic conditions (pH 3 to 6) are most suitable for mixing postemergence herbicides classified as weak acids. When water pH exceeds 7, consider adding adjuvants to lower the pH. Weak acids dissociate less under acid conditions where  $H^+$  ion concentration is high. Dissociated herbicides are absorbed more slowly across plant cell membranes. Ideally, spray water pH should be low such that herbicides do not dissociate, or dissociate at low levels. Avoiding herbicide dissociation is

the primary reason that water used in herbicide mixing should be acidic.

**Alkalinity.** Under conditions of low pH (less than 6.0), hard water has no substantial effect on these products. Low pH likely prevents the herbicide molecules from dissociating. When pH is higher than 7, hard water can interfere with herbicide activity. Higher pH allows the herbicide molecules to dissociate, after which they are quickly bound to free cations. Herbicides containing 2,4-D are available in two broad categories, ester and amine formulations. Many growers prefer the amine formulation because it is less volatile and less prone to drift off target and injure other crops. However, amine formulations are more sensitive to poor water quality than esters.

**Hard water.** Hard water contains high levels of calcium (Ca), magnesium (Mg), sodium (Na), or iron (Fe). Other cations can cause hard water, but these are the usual suspects. These positively charged ions attach to negatively charged herbicide molecules. Often, the association between herbicides and these cations renders the herbicide ineffective. High pH and hard water act together to reduce herbicide effectiveness. High pH causes more of the herbicide to dissociate while high concentrations of cations bind with the dissociated herbicide to reduce its effectiveness. Because the pH of Florida water supply is alkaline, growers should take corrective action. The use of adjuvants to lower pH in spray tanks is important. When labels permit, additions of ammonium sulfate to the spray tank overcome many interactions with herbicides and cations.



# AFRICANIZED HONEYBEES



Africanized Honeybees (AHB) -- also called "Africanized bees" acquired the name "killer bees" because they will viciously attack people and animals who accidentally stray into their territory, often resulting in serious injury or death. It is not necessary to disturb the hive itself to initiate an AHB attack. In fact, Africanized bees have been known to respond viciously to noises or even

vibrations from vehicles, equipment and pedestrians.

Though their venom is no more potent than native honeybees, Africanized bees attack in far greater numbers and pursue perceived enemies for greater distances. Once disturbed, colonies may remain agitated for 24 hours, attacking people and animals within a range of a quarter mile from the hive.

Africanized bees are becoming a problem in Florida.

## ***Bee Invasion***

Africanized bees proliferate because they are less discriminating in their choice of nests than native bees, utilizing a variety of natural and man-made objects, including hollow trees, walls, porches, sheds, attics, utility boxes, garbage containers and abandoned vehicles. They also tend to swarm more often than other honeybees.

## **Bee Safety**

**The best safety advice is to avoid an encounter with unfriendly Africanized Bees. Be alert for danger. Remember that AHB sting to defend their colony, so be on the look out for honeybee swarms and colonies.**

- Be alert for bees coming in and out of an opening such as a crack in a wall, or the hole in a utility box.
- Listen for the hum of an active bee colony.
- Look for bees in holes in the ground, holes in trees or cacti, and in sheds.
- Be extra careful when moving junk that has been laying around.
- Be alert for bees that are acting strangely. Quite often bees will display some preliminary defensive behavior before going into a full-fledged attack.
- When you are outdoors, in a rural area, a park or wilderness reserve, be aware of your surroundings and keep an eye out for bees the way you would watch out for snakes and other natural dangers.
- Don't panic at the sight of a few bees foraging in the flowers. Bees are generally very docile as they go about their normal activities.

### **Be Prepared**

- Wear light-colored clothing. Bees tend to attack dark things. Dark clothing, dark hair, any thing dark in color could draw the animus of AHB.
- Bees are sensitive to odors, both pleasant and unpleasant. The smell of newly cut grass has been shown to disturb honeybees. Avoid wearing floral or citrus aftershaves or perfume.
- Check your house and yard at least once a month to see if there are any signs of bees taking up residence. If you do find a swarm or colony, leave it and keep family and pets away. Find a pest control company or a local beekeeper to solve the problem.
- To help prevent honeybees from building a colony in your house or yard, fill all cracks and crevices in walls with steel wool and caulk. Remove piles of refuse, honeybees will nest in an old soda can or an overturned flowerpot. Fill holes in the ground.

### **Bee Attack**

Bees target the head, and nearly all those who suffer serious stinging incidents with Africanized

Bees are overcome by stings to the head and face.

**The best method of escaping a bee attack is to cover your head and run for shelter.**

Any covering for your body, especially for your head and face, will help you escape. A small handkerchief or mosquito net device that fits over the head could easily be carried in a pocket. If you do not have these, grab a blanket, coat, towel, anything that will give you momentary relief while you look for an avenue of escape. If you have nothing else, pull your shirt up over your face. The stings you may get on your chest and abdomen are far less serious than those to the facial area.

■ Try to find shelter as soon as possible. Take refuge in a house, tent or a car with the windows and doors closed.

■ **DO NOT JUMP INTO WATER! Bees will wait for you to come up for air.**

Once you are away from the bees, evaluate the situation. If you have been stung more than 15 times, or if you are having any symptoms other than local pain and swelling, seek medical attention immediately.

■ If you see someone else being stung or think others are in danger, call 911 immediately.

Remove stingers as soon as possible to lessen the amount of venom entering the body. Scrape stingers off the skin with a blunt instrument or plastic card. Do not remove bee stingers with fingers or tweezers – this only forces toxins into the victim's body.

### **AHB Facts**

- Are slightly smaller than the European honeybee, but only an expert can tell them apart
- Defend their hive more rapidly than the European honey bee
- Usually sting in greater numbers
- Are less selective about where they nest
- Swarm more often than European honey bees
- Do not have stronger venom than the European honey bee
- Each bee can only sting one time – females die after stinging
- Are not native to the U.S.; they came from Africa

## DO NOT FORGET ALTERNARIA BROWN SPOT



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

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



For more information, get your copy of the 2008 Florida Citrus Pest Management Guide online at:

[http://edis.ifas.ufl.edu/TOPIC\\_BOOK\\_Florida\\_Citrus\\_Pest\\_Management\\_Guide](http://edis.ifas.ufl.edu/TOPIC_BOOK_Florida_Citrus_Pest_Management_Guide)

## DO NOT FORGET CITRUS SCAB



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

fungus to Abound, Gem, or Headline may develop.

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

For more information, get your copy of the 2010 Florida Citrus Pest Management Guide online at:

[http://edis.ifas.ufl.edu/TOPIC\\_BOOK\\_Florida\\_Citrus\\_Pest\\_Management\\_Guide](http://edis.ifas.ufl.edu/TOPIC_BOOK_Florida_Citrus_Pest_Management_Guide)

Hard copies of the 2010 Florida Citrus Pest Management Guide may also be available (check with your citrus agent).



### Timmer's Recommendations

#### •Spring flush

Abound, Gem, Headline,  
Ferbam

#### •Petal fall

Abound, Gem, Headline,  
Ferbam

#### •3 weeks later

Cu fungicides, Abound,  
Gem, Headline

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





United States Department of Agriculture  
National Agricultural Statistics Service

# CITRUS MARCH FORECAST MATURITY TEST RESULTS AND FRUIT SIZE



Cooperating with the Florida Department of Agriculture & Consumer Services

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March 8, 2013

**All Orange Production Down 1 Percent**  
**Valencia Orange Production Down 4 Percent**  
**All Grapefruit Production Down 6 Percent**  
**All Tangerine Production Unchanged**  
**Tangelo Production Unchanged**  
**FCOJ Yield 1.61 Gallons per Box (42° Brix)**

<b>FORECAST DATES</b>	—	<b>2012-2013 SEASON</b>
[Release time 12:00 p.m. EDT]		
April 10, 2013		May 10, 2013
June 12, 2013		July 11, 2013

## Citrus Production by Type and State – United States

Crop and State	Production <sup>1</sup>			2012-2013 Forecasted Production <sup>1</sup>	
	2009-2010 (1,000 boxes)	2010-2011 (1,000 boxes)	2011-2012 (1,000 boxes)	February (1,000 boxes)	March (1,000 boxes)
<b>Non-Valencia Oranges <sup>2</sup></b>					
Florida .....	68,600	70,300	74,200	66,000	67,000
California <sup>3</sup> .....	42,500	48,000	45,500	46,500	46,500
Texas <sup>3</sup> .....	1,360	1,700	1,108	1,220	1,220
United States.....	112,460	120,000	120,808	113,720	114,720
<b>Valencia Oranges</b>					
Florida .....	65,100	70,200	72,400	75,000	72,000
California .....	15,000	14,500	13,500	13,000	12,500
Texas <sup>3</sup> .....	275	249	311	286	286
United States.....	80,375	84,949	86,211	88,286	84,786
<b>All Oranges</b>					
Florida .....	133,700	140,500	146,600	141,000	139,000
California .....	57,500	62,500	59,000	59,500	59,000
Texas <sup>3</sup> .....	1,635	1,949	1,419	1,506	1,506
United States.....	192,835	204,949	207,019	202,006	199,506
<b>Grapefruit</b>					
Florida-All .....	20,300	19,750	18,850	18,000	17,000
White.....	6,000	5,850	5,350	5,000	4,500
Colored .....	14,300	13,900	13,500	13,000	12,500
California <sup>3</sup> .....	4,500	4,310	4,400	4,000	4,000
Texas <sup>3</sup> .....	5,600	6,300	4,800	5,280	5,280
United States.....	30,400	30,360	28,050	27,280	26,280
<b>Lemons</b>					
California <sup>3</sup> .....	21,000	20,500	20,500	20,500	20,500
Arizona <sup>3</sup> .....	2,200	2,500	750	1,800	1,800
United States.....	23,200	23,000	21,250	22,300	22,300
<b>Tangelos</b>					
Florida .....	900	1,150	1,150	1,000	1,000
<b>Tangerines</b>					
Florida-All .....	4,450	4,650	4,290	3,700	3,700
Early <sup>4</sup> .....	2,250	2,600	2,330	2,000	2,000
Honey .....	2,200	2,050	1,960	1,700	1,700
California <sup>3 5</sup> .....	9,900	10,600	10,900	11,800	11,800
Arizona <sup>3 5</sup> .....	350	300	200	200	200
United States.....	14,700	15,550	15,390	15,700	15,700

<sup>1</sup> Net pounds per box: oranges in California-80 (75 prior to the 2010-2011 crop year), Florida-90, Texas-85; grapefruit in California-80 (67 prior to the 2010-2011 crop year), Florida-85, Texas-80; lemons-80 (76 prior to the 2010-2011 crop year); tangelos-90; tangerines and mandarins in Arizona and California-80 (75 prior to the 2010-2011 crop year), Florida-95.

<sup>2</sup> Navel and miscellaneous varieties in California. Early (including Navel) and midseason varieties in Florida and Texas. Includes small quantities of tangerines in Texas and Temples in Florida.

<sup>3</sup> Estimates carried forward from previous forecast.

<sup>4</sup> Fallglo and Sunburst varieties.

<sup>5</sup> Includes tangelos and tangors.



## **All Oranges 139.0 Million Boxes**

The 2012-2013 Florida all orange forecast released today by the USDA Agricultural Statistics Board is 139.0 million boxes, down 2.0 million boxes from February and 5 percent less than last season's production. The total includes 67.0 million boxes of non-Valencia oranges (early, midseason, Navel, and Temple varieties) and 72.0 million boxes of Valencia oranges. The hurricane seasons of 2004-2005 and 2005-2006 have been excluded from the usual 10-year regression analysis and from comparisons of the current season to previous seasons. For those previous 8 seasons, the March forecast has deviated from final production by an average of 2 percent with 4 seasons below and 4 above, with differences ranging from 3 percent below to 2 percent above. All references to "average" or "minimum" refer to the previous 8 non-hurricane seasons unless noted.

## **Non-Valencia Oranges 67.0 Million Boxes**

The forecast of non-Valencia orange production is increased by 1.0 million boxes to 67.0 million boxes, based on utilization to the 1<sup>st</sup> of the month. The route survey (Row Count) conducted February 26-27 showed 99 percent of the rows have been harvested. The Navel portion of the non-Valencia forecast remains unchanged at 2.2 million boxes, 3 percent of the total.

## **Valencia Oranges 72.0 Million Boxes**

The forecast of Valencia production is lowered by 3.0 million boxes to 72.0 million boxes. Estimated utilization to the 1<sup>st</sup> of the month is 1.8 million boxes. Fruit size is projected to be near the minimum, requiring 229 pieces of fruit to fill a 90-pound box. Fruit droppage has increased sharply in the past 2 months. The projection of 22 percent droppage is above the maximum.

## **All Grapefruit 17.0 Million Boxes**

The forecast of all grapefruit production is lowered by 1.0 million boxes to 17.0 million boxes. Both the white and colored components were reduced by 500 thousand boxes, resulting in forecasts of 4.5 million boxes of white and 12.5 million boxes of colored grapefruit. The drop surveys conducted in February continue to show droppage for white and colored grapefruit to be the highest in any season not affected by a significant weather event. The size surveys also confirmed fruit size to be the smallest in the series which began with the 1968-1969 season. The Row Count Survey conducted February 26-27 indicated 30 percent of the white grapefruit and 50 percent of the colored grapefruit rows have been harvested.

## **All Tangerines 3.7 Million Boxes**

The forecast of all tangerine production is unchanged at 3.7 million boxes, consisting of the early varieties (Fallglo and Sunburst) at 2.0 million boxes and the Honey tangerine variety at 1.7 million boxes. Harvest of the early tangerines is over for the season and the forecast remains unchanged. The Row Count Survey showed 41 percent of the Honey tangerine rows have been harvested. February surveys confirmed Honey fruit size to be the smallest in a series which began with the 1980-1981 season and droppage continued above the mean.

## **Tangelos 1.0 Million Boxes**

The forecast of tangelo production remains unchanged at 1.0 million boxes, including an allocation of 100,000 boxes for non-certified use. The harvest of tangelos is concluding. Estimated utilization for the week ending March 3, as reported by the Citrus Administrative Committee, is 3,000 boxes. The Row Count Survey conducted February 26-27 showed 99 percent of the rows have been harvested.

## **FCOJ Yield 1.61 Gallons per Box**

The projection for frozen concentrated orange juice (FCOJ) is lowered to 1.61 gallons per box of 42° Brix concentrate. The yield projection for the non-Valencia oranges is raised to 1.51 gallons per box while the projection for Valencia oranges is lowered to 1.71 gallons per box. Last season's final yield for all oranges was 1.628480 gallons per box, as reported by the Florida Department of Citrus. Last season's final yield for the components were 1.529715 for non-Valencia oranges and 1.745597 for Valencia oranges.

#### PURPOSE OF THE INSTITUTE

Citrus Greening or Huanglongbing (HLB) continues to spread throughout citrus production areas of Florida. The 2013 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 health and water management, citrus nutrition, Asian citrus psyllid management, and citrus plant improvement.

#### 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 will have been requested in the following categories: private applicator, agricultural tree crop and regulatory pest control for RUP holders. CEU's have been requested for CCA's in the appropriate CEU categories.

#### SPONSORS

##### PLATINUM

Bayer CropScience  
DuPont Crop Protection  
Syngenta Crop Protection

##### GOLD

FMC Corporation  
G.P. Solutions

KeyPlex

##### SILVER

Oowan  
Valent USA

##### BRONZE

Dow AgroSciences  
Farm Credit



#### 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.

**SOUTH FLORIDA STATE COLLEGE**  
(FORMALLY KNOWN AS SOUTH FLORIDA COMMUNITY COLLEGE)  
**THEATRE FOR PERFORMING ARTS**  
**600 W COLLEGE DRIVE**  
**AVON PARK, FL**

# FLORIDA CITRUS GROWERS' INSTITUTE



Conducted by

University of Florida, IFAS Extension  
Citrus Research and Development  
Foundation

South Florida State College  
(Formerly known as South Florida Community College)  
Theatre for Performing Arts  
Avon Park, Florida  
April 2, 2013

# 2013 Florida Citrus Growers' Institute

## PROGRAM AGENDA TUESDAY, APRIL 2, 2013

8:00 AM - Registration

8:30 AM - Welcome and Introductions

*Dr. Cami Emel-McAvey, CES, Bushnell, FL*

8:40 AM - Update on Current Citrus Research and Development Foundation Investments in Florida Citrus - *Dr. Harold Browning, Chief Operating Officer, Citrus Research and Development Foundation, Inc., Lake Alfred, FL*

### TREE HEALTH AND WATER MANAGEMENT

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

9:00 AM - Conditions that Cause Citrus Fruit Drop - *Dr. Gene Albrigo, CREC*

9:20 AM - Interactions between HLB Root Decline and Phytophthora - *Dr. Jim Graham, CREC*

9:46 AM - Comprehensive BMP Manual for Florida Citrus - *Dr. Brian Boman, IRRFC*

9:56 AM - Modification of Citrus Irrigation Water - *Dr. Kelly Morgan, SWFREC*

10:16 AM - Break

### CITRUS NUTRITION

*Moderator: Dr. Steve Futch, CES, Lake Alfred, FL*

10:26 AM - Foliar Citrus Nutrition and SAR's - *Dr. Robert Reuse, SWFREC*

10:56 AM - Optimizing the Nutritional Status of HLB Infected Citrus Trees - *Dr. Arnold Schumann, CREC*

11:26 AM - Detection and Localization of HLB in Citrus Phloem - *Dr. Craig Brodersen, CREC*

11:46 AM - Foliar Nutrient Uptake in HLB Infected Leaves - *Dr. Ron Brilansky, CREC*

12:10 PM - Lunch

### ASIAN CITRUS PSYLLID MANAGEMENT

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

1:30 PM - Induced Release of Plant Defense Volatiles - *Dr. Emily Kubus, CREC*

1:56 PM - Asian Citrus Psyllid Management in Young Citrus Trees - *Dr. Michael Rogers, CREC*

2:20 PM - Long Term Insecticidal Control of the Asian Citrus Psyllid - *Dr. Jawwad Qureshi, SWFREC*

2:46 PM - Mapping of Citrus Health Management Areas - *Mr. Brandon Page, CREC*

### CITRUS PLANT IMPROVEMENT

*Moderator: Mr. Tim Gavec, CES, Ft. Pierce, FL*

2:56 PM - New USDA Rootstocks - *Dr. Kim Bowman, USDA/ARS, Ft. Pierce, FL*

3:20 PM - New UF Varieties - *Dr. Jude Grosser, CREC*

3:46 PM - Adjourn

CES: County Extension Service

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

IRREC: Indian River Research and Education Center, Ft. Pierce, 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



## FLORIDA CITRUS GROWERS' INSTITUTE

April 2, 2013

## PREREGISTRATION IS REQUIRED

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

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

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

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

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

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

Please send registration to:

Gail Crawford, P.O. Box 9005, Drawer HS05, Bartow, FL 33851

By March 29, 2013

Phone: 863-519-8677 ext 111, Fax: 863-554-0001 or email: [dorothy@ufl.edu](mailto:dorothy@ufl.edu)

# The Twenty Third Annual Farm Safety Day

**Saturday, 18 May 2013**

## **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 2013 Southwest Florida Farm Safety Day is almost here. Farm Safety Day is an educational event designed to emphasize the importance of farm/equipment safety. Each participant is presented with a certificate of attendance and **the employer will be provided with a certificate of training that can be placed into the employee's file.**

### **Registration Info**

**The deadline for registration is May 3<sup>rd</sup>.** It is the employer's responsibility to assure that the employee is present at 7:30 AM on Saturday, May 18<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 22<sup>nd</sup> Farm Safety Day on **Saturday, 18 May 2013**. The cost is \$15.00 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 3469  
Deadline is Friday, May 3, 2013

If there are any questions, please feel free to contact **Mongi Zekri** ([maz@ufl.edu](mailto:maz@ufl.edu))  
**Phone: 863 674 4092**

**Don't wait. The number of trainings offered and attendance at each training is LIMITED. Class size is limited to the first 150 people.**



# *TWENTY THIRD ANNUAL SAFETY DAY*

Saturday, May 18, 2013

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 Prices
8:10-9:00	Session 1 (Begin sessions)
9:00-9:10	Break (change session, door prices)
9:10-10:00	Session 2
10:00-10:10	Break (change session, door prices)
10:10-11:00	Session 3
11:00-11:10	Break (change session, door prices)
11:10-12:00	Session 4
12:00-1:30	Lunch and Adjourn

## **CONCURRENT SESSIONS:**

1. **WPS for Workers**
2. **Preventive Pesticide Spill**
3. **Power Lines Safety**
4. **Emergency Preparedness**



# The 2013 FARM SAFETY DAY REGISTRATION FORM

Please give us the names of those who will be attending our 23<sup>rd</sup> Farm Safety Day on **Saturday, 18 May 2013** at the Immokalee IFAS Center, 2685 State Rd. 29 North, Immokalee, FL 34142. The cost is \$15.00 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 3469  
Deadline is Friday, May 3, 2013

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>English</u>		<u>Spanish</u>
<input type="checkbox"/>		<input type="checkbox"/>
<input type="checkbox"/>		<input type="checkbox"/>
<input type="checkbox"/>		<input type="checkbox"/>
<input type="checkbox"/>		<input type="checkbox"/>
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<input type="checkbox"/>		<input type="checkbox"/>
<input type="checkbox"/>		<input type="checkbox"/>

**\*Please Note:** It is very important that we know 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. Class size is limited to the first 150 people.**

# 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