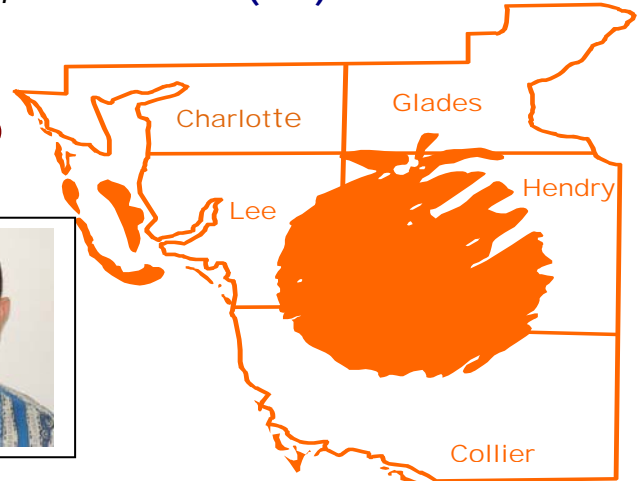


Flatwoods Citrus



Vol. 17, No. 11 **November 2014**

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

Peach & Blueberry Production in SW Florida

Date & time: Wednesday, December 10, 2014, **10:00 AM – 12:00 Noon**

Location: UF-IFAS Southwest Florida Research and Education Center, Immokalee

Program Coordinator: Mongi Zekri

Sponsor: ???

Agenda

----10:00 AM - 10:50 AM Peach cultivars for SW Florida and tree care and requirement,
Dr. Mercy Olmstead

10:00 AM – 11:00 AM Break

----11:00 AM - 11:50 AM Blueberry cultivars for SW Florida and tree care and requirement,
Dr. Jeff Williamson

2 CEUs for Certified Crop Advisors (CCAs)

2 CEUs for Pesticide License Renewal

Pre-registration is required. To reserve a seat, call 863 674 4092, or send an e-mail to Dr. Mongi Zekri at: maz@ufl.edu

Rootstock Field Day

Wednesday, December 3, 2014

UF-IFAS-CREC, Lake Alfred

(3 time selections)

8:00 - 10:15

9:15 – 11:30

10:30 – 12:45

Pre-registration is required by November 26. Call 863 956 8643, E-mail: amburr@ufl.edu

Open House

SW Florida Research & Education Center, Immokalee

Friday, December 5th, 2014

10:00 AM - 3:00 PM

RSVP is required, Call 239 658 3400, E-mail: rdecker54@ufl.edu

January 14th, 2015

Scouting and Management of Citrus Insect Pests

Dr. Phil Stansly, Dr. Jawwad Qureshi, Dr. James Tansey, and Barry Kostyk

1. Scouting citrus for pests and beneficials
2. Effectiveness of insecticidal control of the citrus psyllid
3. Results of citrus psyllid and citrus leafminer insecticide trials
4. CHMAs

February 3rd, 2015

Scouting and Managing Citrus Fungal Diseases

Dr. Megan Dewdney and Dr. Pam Roberts

1. Alternaria brown rot and citrus scab symptoms and managements
2. Melanose and greasy spot symptoms and management, and the copper model
3. Postbloom fruit drop to the program.
4. Citrus black spot and Phytophthora management

2015 International Research Conference on Huanglongbing (HLB)

Mark your calendar and plan to attend the 4th International Research Conference on HLB
in Orlando, Florida USA
February 9-13, 2015

Visit the IRCHLB website for more information - [Click here for IRCHLB website](http://flcitrusmutual.com/hlb-conference/register.aspx)
<http://flcitrusmutual.com/hlb-conference/register.aspx>

Annual Certified Pile Burners Course in SW Florida

Registration fee: \$50

The \$50 fee covers the training sessions, a booklet with all the presentations in color, other handouts, refreshments, and lunch

Pre-registration is required to attend, and class size is limited to the first 50 people.

PRE-REGISTRATION WILL NOT BE ACCEPTED WITHOUT PAYMENT OF THE REGISTRATION FEE

Date & time: Thursday, 5 February 2015, 7:30 AM – 4:30 PM.

Location: Hendry County Extension Office, LaBelle

The Florida Division of Forestry and University of Florida Cooperative Extension Service will be conducting a Certified Pile Burners Course that will show you how to burn piles **legally, safely and efficiently.**

Information on registration and detailed information are available in this newsletter issue and online: <http://www.freshfromflorida.com/Divisions-Offices/Florida-Forest-Service/Education/For-the-Community/Withlacoochee-Training-Center-WTC/Class-Schedule>

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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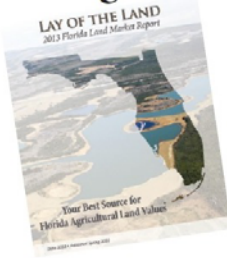
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EL NIÑO/SOUTHERN OSCILLATION (ENSO) DIAGNOSTIC DISCUSSION

issued by

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

6 November 2014

ENSO Alert System Status: El Niño Watch

Synopsis: There is a 58% chance of El Niño during the Northern Hemisphere winter, which is favored to last into the Northern Hemisphere spring 2015.

During October 2014, above-average sea surface temperatures (SST) increased slightly across the eastern half of the equatorial Pacific (Fig. 1). The weekly Niño indices were between +0.6°C (Niño-3.4 and Niño-1+2) and +0.9°C (Niño-3) at the end of the month (Fig. 2). Subsurface heat content anomalies (averaged between 180°-100°W) were largely unchanged (Fig. 3) even as a new downwelling Kelvin wave increased temperatures at depth in the central Pacific (Fig. 4). The monthly equatorial low-level winds were near average, although anomalous westerlies continued to emerge on occasion. Upper-level winds were also mostly average across the Pacific. The Southern Oscillation Index continued to be negative, accompanied by mostly average rainfall near the Date Line and suppressed rainfall over Indonesia (Fig. 5). Overall, several features across the tropical Pacific are characteristic of borderline El Niño conditions, but collectively, the combined atmosphere and oceanic state remains ENSO-neutral.

Similar to last month, most models predict El Niño to develop during October-December 2014 and to continue into early 2015 (Fig. 6). However, the ongoing lack of clear atmosphere-ocean coupling and the latest NCEP CFSv2 model forecast (Fig. 7) have reduced confidence that El Niño will fully materialize (at least five overlapping consecutive 3-month values of the Niño-3.4 index at or greater than 0.5°C). If El Niño does emerge, the forecaster consensus favors a weak event. In summary, there is a 58% chance of El Niño during the Northern Hemisphere winter, which is favored to last into the Northern Hemisphere spring 2015 (click [CPC/IRI consensus forecast](#) for the chance of each outcome).

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 4 December 2014. To receive an e-mail notification when the monthly ENSO Diagnostic Discussions are released, please send an e-mail message to: ncep.list.enso-update@noaa.gov.

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

WATER WATCH

Keeping an Eye on Water Resources

District-Wide Conditions for October 17, 2014

The South Florida Water Management District (SFWMD) is issuing the following briefing:

Based on weather patterns during the last several weeks, District meteorologists have determined that South Florida's daily sea-breeze cycle wet-season rains ended on October 4. Slightly above-average seasonal rainfall left water levels in good condition in many areas. This provides the benefit of water-supply flexibility to water managers into the dry season.

The dry season typically runs from mid-October to mid-May with about 18 inches of rain on average.

Water Levels in Key Locations (October 17)		
Location	Today's level	Water Supply Floor
WCA-1	17.25 feet	14.00 feet
WCA-2A	13.68 feet	10.50 feet
WCA-3A	10.59 feet	7.50 feet

Water Conservation

- South Florida is under the District's Year-Round Landscape Irrigation Rule that limits residential and business landscape irrigation to two or three days per week.
 - To determine watering days and times in your area, contact your local government or visit www.sfwmd.gov/2days.
- Permitted water users such as nurseries, agriculture, golf courses and utilities can find water use conditions in their permits online at www.sfwmd.gov/ePermitting.
- For tips and information about water conservation, visit www.savewaterfl.com.

Lake Okeechobee Operations

- The U.S. Army Corps of Engineers manages Lake Okeechobee water levels based on its regulation schedule and the best available science and data provided by its staff and a variety of partners, including SFWMD.
 - SFWMD makes an operational recommendation each week based on conditions. The most recent Operational Position Statement is available at www.sfwmd.gov/opsreports.

Lake Okeechobee Levels	
Today (Oct. 17)	15.84 feet
Historical Average for Today	15.05 feet
This Date One Year Ago	15.60 feet

###

Media inquiries can be directed to:

Gabe Margasak

South Florida Water Management District

Office: (561) 682-2800 or Cell: (561) 670-1245

DROUGHT

Water stress is the physiological condition to which a plant is subjected whenever the rate of water loss from the leaves by transpiration exceeds the rate at which water is absorbed by the root system. Water stress can be the result of excessive transpiration due to hot weather or slow absorption from a dry soil, flooded soil or saline conditions. Any degree of water imbalance can produce a deleterious change in physiological activity of growth and reproduction. Short-term drought often reduces production and prolonged drought can cause total crop failure. Severe drought between February and June can reduce fruit set, fruit development and fruit growth. The number of fruit, fruit size, and tree canopy are reduced with water stress. Extension growth in shoots and roots, and leaf expansion are all negatively correlated with water stress. Trees subjected to water stress are generally reduced in size. Vegetative growth is particularly sensitive to water deficit. Growth is closely related to turgor and the loss of turgidity reduces photosynthesis, leaf and fruit enlargement, juice content and yield, and increases wilting and leaf and premature fruit drop. Growers cannot afford water stress or water restrictions during critical periods. Irrigation is not only essential during the springtime, but it is also important during dry falls to minimize premature fruit drop.





United States Department of Agriculture
National Agricultural Statistics Service

CITRUS NOVEMBER FORECAST
MATURITY TEST RESULTS AND FRUIT SIZE



Cooperating with the Florida Department of Agriculture and Consumer Services
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November 10, 2014

Florida All Orange Production Unchanged
Florida Non-Valencia Orange Production Unchanged
Florida Valencia Orange Production Unchanged
Florida All Grapefruit Production Unchanged
Florida All Tangerine Production Down 7 percent
Florida Tangelo Production Unchanged
FCOJ Yield Remains 1.60 Gallons per Box (42° Brix)

FORECAST DATES	2014-2015 SEASON
December 10, 2014	April 9, 2015
January 12, 2015	May 12, 2015
February 10, 2015	June 10, 2015
March 10, 2015	July 10, 2015

Citrus Production by Type and State – United States

Crop and State	Production ¹			2014-2015 Forecasted Production ¹	
	2011-2012 (1,000 boxes)	2012-2013 (1,000 boxes)	2013-2014 (1,000 boxes)	October (1,000 boxes)	November (1,000 boxes)
Non-Valencia Oranges ²					
Florida.....	74,200	67,100	53,300	52,000	52,000
California ³	45,500	42,500	39,000	40,500	40,500
Texas ³	1,108	1,499	1,400	1,627	1,627
United States.....	120,808	111,099	93,700	94,127	94,127
Valencia Oranges					
Florida.....	72,500	66,500	51,300	56,000	56,000
California ³	12,500	12,000	11,000	10,000	10,000
Texas ³	311	289	376	345	345
United States.....	85,311	78,789	62,676	66,345	66,345
All Oranges					
Florida.....	146,700	133,600	104,600	108,000	108,000
California ³	58,500	54,500	50,000	50,500	50,500
Texas ³	1,419	1,788	1,776	1,972	1,972
United States.....	206,119	189,888	156,376	160,472	160,472
Grapefruit					
Florida-All.....	18,850	18,350	15,650	15,000	15,000
White.....	5,350	5,250	4,150	4,000	4,000
Colored.....	13,500	13,100	11,500	11,000	11,000
California ³	4,000	4,500	4,000	4,000	4,000
Texas ³	4,800	6,100	5,700	5,750	5,750
United States.....	27,650	28,950	25,350	24,750	24,750
Lemons ³					
California.....	20,500	21,000	19,000	19,000	19,000
Arizona.....	750	1,800	1,800	2,000	2,000
United States.....	21,250	22,800	20,800	21,000	21,000
Tangelos					
Florida.....	1,150	1,000	880	900	900
Tangerines					
Florida-All.....	4,290	3,280	2,900	2,800	2,600
Early ⁴	2,330	1,910	1,750	1,700	1,500
Honey.....	1,960	1,370	1,150	1,100	1,100
California ^{3,5}	10,800	13,000	14,500	16,000	16,000
Arizona ^{3,5}	200	200	200	220	220
United States.....	15,290	16,480	17,600	19,020	18,820

¹ Net pounds per box: oranges in California-80, Florida-90, Texas-85; grapefruit in California-80, Florida-85, Texas-80; lemons-80, tangelos-90; tangerines and mandarins in Arizona and California-80, Florida-95.

² 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.

³ Estimates carried forward from October.

⁴ Fallglo and Sunburst varieties.

⁵ Includes tangelos and tangors.

All Oranges 108.0 Million Boxes

The 2014-2015 Florida all orange forecast released today by the USDA Agricultural Statistics Board is 108.0 million boxes, unchanged from the initial October forecast. If realized, this forecast will be 3 percent more than last season's production. The forecast consists of 52.0 million boxes of the non-Valencia oranges (early, midseason, Navel, and Temple varieties) and 56.0 million boxes of the Valencia oranges. Regression data used are from the 2006-2007 through 2013-2014 seasons. For those previous 8 seasons, the November forecast has deviated from final production by an average of 6 percent, with 7 seasons above and 1 below, with differences ranging from 1 percent below to 20 percent above. All references to "average", "minimum", and "maximum" refer to the previous 8 seasons unless noted.

Non-Valencia Oranges 52.0 Million Boxes

The forecast of non-Valencia production is unchanged at 52.0 million boxes. Current size is close to the minimum and projected to remain close to the minimum until harvest. Current droppage is above average, and is projected to be closer to the maximum at harvest. The Navel forecast, included in the non-Valencia forecast, is unchanged at 1.5 million boxes. If realized, this utilization will be the lowest in the series which began in 1979-1980. Current Navel size is about average and droppage is close to the maximum.

Valencia Oranges 56.0 Million Boxes

The forecast of Valencia production is unchanged at 56.0 million boxes. Current fruit size is slightly above the minimum and is projected to be above the minimum at harvest. Current droppage is close to the maximum and projected to be close to the maximum at harvest.

All Grapefruit 15.0 Million Boxes

The forecast of all grapefruit production remains at 15.0 million boxes. The white grapefruit forecast is unchanged at 4.0 million boxes. The colored grapefruit forecast is unchanged at 11.0 million boxes. Current fruit size of white grapefruit is slightly above the minimum and droppage is above average. Current fruit size of colored grapefruit is also slightly above the minimum and droppage is above average.

All Tangerines 2.6 Million Boxes

The forecast of all tangerine production is reduced by 200,000 boxes to 2.6 million boxes. The early tangerine forecast (Fallglo and Sunburst) is now 1.5 million boxes, consisting of 450,000 boxes of Fallglo tangerines and 1.05 million boxes of Sunburst tangerines. Harvest of Fallglo tangerines started in mid-September and is projected to go through mid-November, while Sunburst tangerine harvest is just underway. Fallglo final size is well below the minimum in a series beginning with the 1995-1996 season. Fallglo final droppage is above average at 27 percent. Sunburst current size is below the minimum and projected to set a new low record at harvest; droppage is projected to be well above average at 31 percent. The forecast of the later maturing Honey variety remains at 1.1 million boxes. Current Honey size is below average but current droppage is above average.

Tangelos 900 Thousand Boxes

The forecast of tangelo production is unchanged at 900 thousand boxes. Tangelo projected fruit size is below average requiring 280 pieces of fruit to fill a 1 3/5 bushel box. Droppage is projected above average at 12 percent.

FCOJ Yield 1.60 Gallons per Box

The projection for frozen concentrated orange juice (FCOJ) remains at 1.60 gallons per box of 42° Brix concentrate. Last season's final yield for all oranges was 1.569080 gallons per box, as reported by the Florida Department of Citrus. Yield projections for the early-midseason and late components will be published in January. All projections of yield assume the processing relationships this season will be similar to those of the past several seasons.

Forecast Components, by Variety — Florida: November 2014

[Survey data is considered final in December for Navels, January for early-midseason oranges, February for grapefruit, and April for Valencias]

Type	Bearing trees (1,000 trees)	Fruit per tree (number)	Droppage (percent)	Fruit per box (number)
ORANGES				
Early-midseason.....	22,707	890	20	284
Navel.....	970	295	24	138
Valencia.....	31,190	624	28	235
GRAPEFRUIT				
White.....	1,199	477	22	117
Colored.....	3,374	445	21	119

Saline Irrigation Water: Impacts on Citrus Production

Mongi Zekri, Barrett Gruber and Brian Boman, UF-IFAS

What conditions lead to irrigation water becoming salinized?

Irrigation of Florida citrus can be challenging due to the variety of ways that salts can be introduced into the agricultural water supply. For example, the use of Floridan aquifer water containing high salt levels, leaking artesian wells that have contaminated surficial aquifer wells, saltwater intrusion into groundwater aquifers, and the salt index of fertilizers are all factors that should be taken into consideration when developing a citrus irrigation management plan. In general, all irrigation water has at least some dissolved salt. The degree to which irrigation water is salinized can be measured through monitoring the Total Dissolved Solids (TDS). Typically, irrigation water intended for citrus production is usually considered “adequate” if the TDS (measured in parts per million, ppm) is less than 1,000 ppm – 1,200 ppm. In irrigation water with TDS values greater than 1,000 ppm, the potential for developing toxic conditions for plant growth arises from high levels of sodium and chloride ions. High concentrations of these ions, even when the total volume of irrigation water applied is adequate for tree growth and fruit production, can make it more difficult for a tree to take up water from the soil due to increased osmotic stress of the plant’s root cells.

Why is monitoring irrigation water salinity important?

If irrigation water salinity is not managed (for example, if the TDS value chronically exceeds 1,200 ppm), there is an increased risk of toxicity to the citrus tree. Highly salinized water negatively affects all biological stages of citrus, including root, leaf, and fruit development (**Figure 1**). Citrus is considered to be a salt-sensitive crop because important plant physiological processes (including leaf photosynthesis and flower induction) are negatively impacted with even moderately salinized irrigation water.

How can irrigation water salinity be managed?

Throughout the growing season, water content within the soil fluctuates. During the rainy months of summer, water content is higher, and in the drier months of winter, it is lower. Salt ions become concentrated within the soil when water contents are relatively low. This is due to the inability of salts to be leached below the citrus tree’s root zone. Thus, periodic leaching may be required to help flush salts from the root zone. This flushing is accomplished by frequent irrigation cycles during the dry months of the year.

If groves are located in a region where it is known that TDS values regularly exceed 1,200 ppm, or in areas where soil is poorly drained or where there is a perched water table, there is an increased risk of salinity-associated plant toxicity. In these situations, frequent irrigation cycles are also used to help flush excess salts beyond the citrus tree’s root zone. However, salt concentrations also fluctuate throughout the year, and it is important to regularly monitor the TDS value of irrigation water. A County Extension Agent can assist in developing a salinity monitoring program, including providing instructions on how to take water samples and interpreting the results. Regular maintenance of any water furrows, ditches, and canals will also reduce the risk

of developing salinity-associated toxicity by ensuring that the soil in the grove is drained properly.

The salt index (**Table 1**) and fertilizer source materials should be taken into consideration when developing a citrus irrigation management plan. As values of the salt index increase, the osmotic stress (the stress placed on citrus roots' ability to absorb water from the soil) also increases. Thus, selecting fertilizers with low salt indexes, particularly in situations where TDS values exceed 1,200 ppm, should be part of the management program. Specifically, replacing sodium nitrate and potassium chloride N and K sources with lower salt index N and K materials should result in lowered salinity-associated stress and reduce exposure to toxic Na and Cl in the soil solution. Frequent irrigation cycles aimed at leaching salts below the root zone (mentioned above) can also flush essential plant nutrients away from roots. Therefore, using split-applications of dry, water-soluble fertilizers several times during the year, or low-volume, low-concentration with high-frequency liquid fertigation cycles, may be preferred to fewer fertilizer applications at higher rates.

Citrus scion cultivar and rootstock also have known interactions with salinized irrigation water. Generally, grapefruit cultivars are more sensitive to high salt levels than orange cultivars; although both grapefruit and orange cannot tolerate salinized irrigation water for long periods of time. Through both anecdotal and formal research observations, it has been noted that some rootstocks are more forgiving of saline irrigation water than others. The following rootstock varieties are generally viewed as being relatively less-to-more sensitive to salinity: 'Cleopatra' mandarin, sour orange, sweet orange, 'Swingle' citrumelo, 'Carrizo' citrange, and rough lemon.

In summary

The salinity of irrigation water can have far-reaching effects on citrus production. Chronically high levels of salt (when TDS values exceed 1,200 ppm) can severely damage citrus tree growth and fruit production. Under these conditions, it is important to regularly provide a flushing irrigation that will be successful in leaching potentially toxic salt ions past the root zone. Even when water sources typically have TDS values below 1,200 ppm, periods of little rainfall can lead to high concentrations of salt ions in the soil. Thus, a leaching irrigation is often also required in times of little or no rainfall. The following are basic guidelines that might form the basis for successful citrus irrigation management.

- Regular flushing irrigations to achieve root zone leaching (duration of at least 6 hours every 7-10 days) when TDS values regularly exceed 1,200 ppm or during periods of little or no rainfall.
- Maintenance of any water furrows, ditches, or canals to ensure that the grove space is drained properly.
- Avoid using fertilizers whose components have high salt indexes. If using dry fertilizer, rely upon split-applications as frequently as possible. If fertigating, rely on low-volume, low-concentration applications with frequent cycles.
- Rootstock selection can have significant implications regarding salinity management: 'Swingle,' 'Carrizo,' and rough lemon are relatively more sensitive to salt; although all citrus is susceptible to salinity-associated toxicity.



Figure 1. Symptoms of salt damage (yellowing and desiccation) to citrus foliage.

Table 1. Salt index of some fertilizer sources

<u>Material and Analysis</u>	Salt Index per unit (20 lb) of plant nutrient
Nitrogen	
Ammonia, 82.2% N	0.572
Ammonium nitrate, 33.5% N	2.990
Ammonium sulfate, 21.2% N	3.253
Ammonium nitrate, 20.5% N	2.982
Calcium nitrate, 15.5%	4.194
Sodium nitrate, 16.5% N	6.060
Urea, 46.6% N	1.618
Phosphorus	
Normal superphosphate, 20% P ₂ O ₅	0.390
Concentrated superphosphate, 45% P ₂ O ₅	0.224
Concentrated superphosphate, 48% P ₂ O ₅	0.210
Monoammonium phosphate, 12.2% N, 61.7% P ₂ O ₅	0.405
Diammonium phosphate, 18% N, 46% P ₂ O ₅	0.456
Potassium	
Potassium chloride, 60% K ₂ O	1.936
Potassium nitrate, 13.8% N, 46.6% K ₂ O	1.219
Potassium sulfate, 46% K ₂ O	0.853
Monopotassium phosphate, 52.2% P ₂ O ₅ , 34.6% K ₂ O	0.097
Sulfate of potash-magnesia, 21.9% K ₂ O, 10.8% Mg	1.971

MICROSPRINKLER IRRIGATION & FERTIGATION

Microsprinkler irrigation is an important component of citrus production systems in Florida. Microirrigation is more desirable than other irrigation methods for several reasons. Three important advantages are: water conservation, the potential for significantly improving fertilizer management and for cold protection.

Research has shown that when properly managed (no overirrigation), water savings with microirrigation systems can amount to as much as 80% compared with subirrigation and 50% compared with overhead sprinkler irrigation.



Microirrigation provides for precise timing and application of fertilizer nutrients in citrus production. Fertilizer can be prescription-applied during the season in amounts that the tree needs and at particular times when those nutrients are needed. This capability helps growers increase the efficiency of fertilizer application and should result in reduced fertilizer applications for citrus production. Research has also shown the important advantage of microsprinklers for freeze protection of citrus.

Fertigation is the timely application of small amounts of fertilizer through irrigation systems directly to the root zone.

Some advantages of fertigation:

- ◆ Fertilizer is placed in the wetted area where feeder roots are extensive,
 - ◆ Fertilizer may be applied more frequently in small amounts so that it is available when the tree needs it,
 - ◆ Increased fertilizer application frequency can increase fertilizer efficiency and reduce leaching,
 - ◆ Application cost is much lower than that of dry or foliar fertilizer application.
- Through fertigation, comparable or better yields and quality can be produced with less fertilizer. Microirrigation systems must properly maintain to apply water and fertilizer uniformly. Growers must determine:
- (1) which fertilizer formulations are most suitable for injection,
 - (2) the most appropriate fertilizer analysis for different age trees and specific stages of growth,
 - (3) the amount to apply during a given fertigation event, and
 - (4) the timing and frequency of applications.
- Properly managed applications of plant nutrients through irrigation systems significantly enhance fertilizer efficiency while maintaining or increasing yield. On the other hand, poorly managed fertigation may result in substantial yield losses. Fertigation involves deciding which and how much nutrients to apply, selecting the most effective formulations and scheduling injections to ensure that essential nutrients are available as needed.

Injection Duration

A minimum injection time of 45 to 60 minutes is recommended. This time is sufficient for uniform distribution of nutrients throughout the fertigation zone. Limit injection time to prevent the application of too much water, because excessive water leaches plant nutrients below the root zone.

MOBILE IRRIGATION LAB

The Agricultural MIL is a FREE service that serves Florida. For an Agricultural MIL evaluation in Southwest Florida call **(239) 455-4100**

Assisting the agricultural community by improving irrigation efficiency and conserving water.



The Mobile Irrigation Lab program is an ongoing joint effort between the District, the U.S. Department of Agriculture–Natural Resources Conservation Service (USDA–NRCS) and the agricultural community. The program began in 1987 to assist the District in meeting its statutory responsibilities and to assist growers with water conservation.

The Mobile Irrigation Lab is a free volunteer service to the agricultural community. Any grower can contact the District to arrange a free evaluation. It was expanded to help growers meet water use permit conditions. District staff has used high pumpage reports to identify users who might wish to voluntarily reduce water use before a resource problem or permit violation occurs.

A trained technician is invited to a grower's field and collects irrigation system and specific field data. System pressure and irrigation uniformity data are then reviewed and computer-analyzed. A report provides recommendations for improvements and irrigation schedules. If needed, the technician assists the local NRCS office in the redesign of the system.

An irrigation schedule offers a general guide to determine when and how much to irrigate based on system efficiency, crop requirements and soil characteristics.

In addition to the benefits of free irrigation evaluations, water conservation and water quality improvements, the program shares valuable technology and information with growers.

Mobile Irrigation Lab data suggests that most evaluated systems are already at or above permitted efficiency standards. With only minor improvements, about half the sites below these standards could easily meet them. Typically, if all recommendations are implemented, overall system irrigation efficiency can improve by an estimated 17 percent — helpful to any grower's bottom line, as well as the region's water resources.



What, When, How Often and What to Spray for ACP Control

Dr. Phil Stansly, UF IFAS- Immokalee

Most process orange growers back in the day didn't have to think too much about what to spray. A post bloom and summer oil spray usually got you through. You couldn't afford much more anyway with 85¢ pound solids. Leafminer came along and required more attention on young trees but not much else, at least until we got canker. Then came ACP which also seemed mostly a young tree problem until greening set in with a vengeance. Decisions on what, when, how often and what to spray since then have become increasingly complex. Seems like there's no way to spray enough to avoid HLB but also that the more aggressive programs have the best looking groves. Still, everyone has a budget and cost is a major criterion to consider along with effectiveness, pest population, resistance management, impact on beneficials and CHMA considerations. Juggling all these factors to find the optimal program for each grower can cause major headaches!

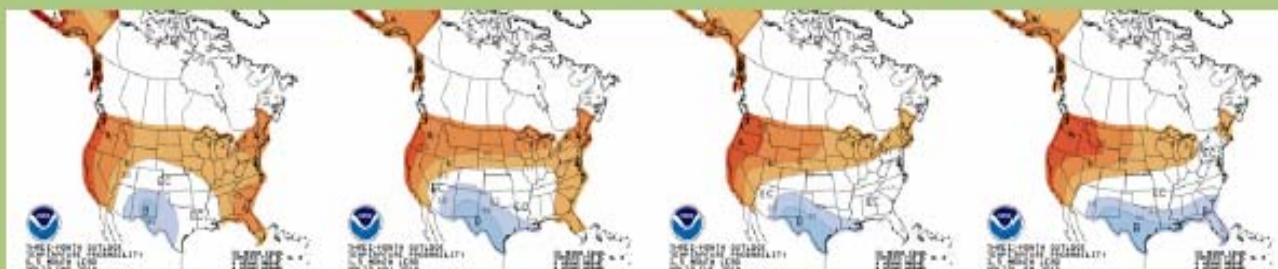
The following table is an attempt to suggest at least one set of alternatives based on a pre-determined number of sprays, from 1 to 10 per year. The criteria employed are (1) effectiveness against ACP and other pests that may be present, (2) for the most part not repeating any insecticide mode of action nor spraying a neonicotinoid (needed most for soil application to young trees) in the interest of resistance management, and (3) confining the broad-spectrum insecticides (pyrethroids or organo-phosphates) to the dormant season where they are most effective and have least impact on beneficials. Many of these products are not cheap, so cost would have to be controlled by number of sprays applied. Another way to reduce costs would be increased use of inexpensive but still effective products, i.e. pyrethroids, organo-phosphates, and imidacloprid. These are individual choices for each grower to make although they affect the whole group. I look forward to your input and the opportunity to discuss your particular issues. We'll do our best to help find the best solutions.

Example Insecticide Programs for ACP and Other Pests in Florida that Avoid Repeating Modes of Action

	Insecticide Sprays per year (excluding oil alone)						Other pests Controlled	MOA** Group
	One	Two	Four	Five	Eight	Ten		
Jan	Pyrethroid	Pyrethroid	Pyrethroid	Pyrethroid	Pyrethroid	Pyrethroid	Weevils	3
Feb			Movento*^	Movento*^	Movento *^	Movento *^	Rustmite Scales	23
Mar						Portal^	Spidermites, Rustmites	21
Apr	Oil	Oil	Oil	Oil	Micromite*^	Micromite*^	Leafminer Rustmite Weevils	15
					Voliam Flexi		Leafminer	4A,28
May						Abamectin*	Leafminer, Rustmite	6
Jun			Delegate*	Delegate*	Delegate*	Voliam Flexi	Leafminer	5 4A+23
Jul	Oil	Oil	Oil	Oil	Abamectin*		Leafminers, Rustmites Aphids	6 4D
Aug						Oil	Rustmite, Leafminer	
Sep						Delegate*	Leafminer	5
					APTA^		Rustmite, Spidermites	21
				Micromite*^			Rustmite ,Weevils Leafminer	15
Oct						APTA^	Rustmite Spidermites	21
Nov-Dec		OP	OP	OP	OP	OP	Weevils	1B

*Generally applied with oil or another surfactant ‡ May not be necessary due to low populations ^ Primarily for control of nymphs ** www.irac-online.org

Winter Weather Watch



Polk County Cooperative Extension Service

Phone: 863-519-1052

Email: wcoswalt@ufl.edu



UF/IFAS Polk County Cooperative Extension Service

The 2014 - 15 version of the Winter Weather Watch will begin on Saturday, November 15, 2014. Time is short so send in your subscription form to receive timely agricultural winter weather forecasts and information.



The 2014-15 edition of the Polk County Winter Weather Watch program will begin on November 15, 2014. The program provides growers with winter weather forecast

information specifically geared toward agricultural interests in West Central and Southwest Florida. The program provides subscribers with an unlisted phone number for (24 hour/7 days a week) access to daily weather forecasts. The zone forecasts are from the National Weather Service (NWS) and are listed on the automated phone menu, so you can select the products you are interested in. Forecasts include the zone forecasts, 6-10 and 8-14 day outlook forecasts. In addition to the forecasts we have special weather narratives provided as needed in the event of freezing temperatures and a weekly outlook. When freezing temperatures are predicted in our area additional updates will include the afternoon zone forecast and the modified sunset brunt minimum temperature equation. If this is not enough we will also provide the weekly citrus leaf freezing

temperatures and the 2014-15 Winter Weather Watch manual.

Subscriptions for the Winter Weather Watch program are only \$100.00 for the entire 4 month period (Nov 15 to Mar 15). The cost is about the same as one tank of gas for your pickup truck. You can subscribe to the Winter Weather Watch by completing and returning the enclosed "subscription form".

Forecast Schedule

The following schedule lists the products available from the Winter Weather Watch. The times and specific days of week and the forecasted minimum temperature dictate when these forecasts products will be



updated. Our Winter Weather Watch area includes the following areas by county: Pasco, Hillsborough, Polk, Highlands, Hardee, Manatee, Sarasota, DeSoto, Charlotte, Lee, Glades, Hendry and Inland Collier Counties.

FORECAST SCHEDULE

Forecast Product	Above 32 ° F	32°-29°F	28° F or Below
<i>Zone</i>	<i>Daily 8:30 a.m.</i>	<i>Daily 8:30 a.m.</i>	<i>Daily 8:30 a.m.</i>
<i>6-10 & 8-14 Day Outlooks</i>	<i>Mon/Wed/Fri 8:30 a.m.</i>	<i>Mon/Wed/Fri 8:30 a.m.</i>	<i>Mon/Wed/Fri 8:30 a.m.</i>
<i>Weekly Outlook</i>	<i>Friday 5:00 p.m.</i>	<i>Friday 5:00 p.m.</i>	<i>Friday 5:00 p.m.</i>
<i>Leaf Freezing Temperatures</i>	<i>Available on Friday on the FAWN website</i>	<i>Available on Friday on the FAWN website</i>	<i>Available on Friday on the FAWN website</i>
<i>Special Weather Narratives</i>	<i>As Needed</i>	<i>Daily 4:00 p.m.</i>	<i>Daily 4:00 p.m.</i>
<i>Afternoon Zone</i>	<i>None</i>	<i>Daily 5:30 p.m.</i>	<i>Daily 5:30 p.m.</i>
<i>Sunset/Brunt</i>	<i>As Needed</i>	<i>As Needed</i>	<i>Daily 7:00 p.m.</i>

2014 – 2015 WINTER WEATHER WATCH PROGRAM

NOVEMBER 15, 2014 TO MARCH 15, 2015
REGISTRATION FEE: \$100.00



It's once again time to register for the upcoming 2014 - 2015 Winter Weather Watch Program. Upon receiving your \$100.00 registration payment, you will be sent an unlisted telephone

number with which you can retrieve the latest Ag Forecasts, 24 hours a day. **Please do not give this number to others.** The *Winter Weather Watch Program* is funded by the registration fees to pay for telephone equipment rentals, long distance calls, repairs and our meteorologist.



2014 - 2015 Winter Weather Watch Program

NAME: _____ PHONE NUMBER: _____

COMPANY: _____

MAILING ADDRESS: _____

EMAIL ADDRESS: _____

CITY: _____ ZIP CODE: _____

REGISTRATION FEE \$100.00

PLEASE RETURN THIS REGISTRATION FORM AND YOUR CHECK PAYABLE TO:

**POLK COUNTY EXTENSION CITRUS ADVISORY COMMITTEE
PO BOX 9005, DRAWER HS03
BARTOW, FL 33831-9005**



Gulf Citrus Growers Association Scholarship Foundation, Inc.

11741 Palm Beach Blvd., #202, Fort Myers, FL 33905

(239) 690-0281 / Fax: (239) 690-0857 / Email: gulfcitrus@embarqmail.com

About the Gulf Citrus Growers Association

The citrus growers of southwest Florida are committed to supporting education as a long-term investment in the future of our industry. The first Gulf Citrus scholarship was awarded in 1992 through the Gulf Citrus Growers Association, a trade organization representing growers in Charlotte, Collier, Glades, Hendry and Lee Counties.

The Gulf Citrus Growers Association Scholarship Foundation was established in 2000 as a non-profit entity to oversee the distribution of these awards. Scholarship applications are accepted throughout the year and are reviewed semi-annually by a Scholarship Selection Committee comprised of academic and industry members. The number and amount of awards vary depending upon the number of applications received and available funds.

Applicants who are not selected may submit a new application for consideration in the next selection cycle. Previous award winners may also reapply.

Scholarship Criteria

Preferred requirements for scholarships are as follows:

AA, BS, MS and PhD Degrees:

- Completion of all placement testing and a **declared major** in agriculture or related major.
- Completion of **12 credit hours** towards agriculture or related degree.
- Minimum overall grade point average of **2.5** for AA and BS degrees; **3.0** for MS and PhD degrees.
- A demonstrated **commitment** to complete the degree at a state college, community college or university.

Applicants must send their transcripts including grades for the courses taken the previous semester and complete the attached application, which includes a statement of release giving the selection committee permission to verify information submitted.

*****APPLICATION DEADLINES ARE JULY 31 AND DECEMBER 31*****



Gulf Citrus Growers Association Scholarship Foundation, Inc.

11741 Palm Beach Blvd., #202, Fort Myers, FL 33905
(239) 690-0281 / Fax: (239) 690-0857 / Email: gulfcitrus@embarqmail.com

Scholarship Application

Personal Data

Name: _____ Date of Birth: _____

Home Address: _____

City/State: _____ Zip: _____ Phone: _____

Mailing Address: _____

City/State: _____ Zip: _____ Phone: _____

E-mail: _____

Employer: _____

Full time position: _____ or Part time position _____

Address: _____

City/State: _____ Zip: _____ Phone: _____

Does your employer reimburse you for tuition or other expenses incurred toward your degree? Yes _____ No _____

Educational Information

College or University in which you are enrolled: _____

Full time student: _____ or Part time student _____

Department / Degree Program: _____

I am working toward the following: AA _____ BS _____ MS _____ PhD _____ Other _____

Courses Taken in Major (completed):

Courses (in which you are currently enrolled):

Total Credit Hours Toward Degree: _____ Cumulative Grade Point Average (GPA): _____

Expected Date of Graduation: _____

Please answer the following questions in complete sentences with as much detail as possible.

What are your career goals? _____

What is the potential value of your education to the citrus industry *in southwest Florida*?

I authorize the release of this application and any relevant supporting information to persons involved in the selection of recipients for Gulf Citrus Growers Association scholarships.

Applicant's Signature

Date

*****APPLICATION DEADLINES ARE DECEMBER 31 AND JULY 31*****

Please return this application with your official transcripts to:

Gulf Citrus Growers Association Scholarship Foundation, Inc.
Dr. Mongi Zekri, Application Coordinator
Hendry County Extension Office
P. O. Box 68
LaBelle, FL 33975
(863) 674-4092
E-mail: maz@ifas.ufl.edu

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

Subscriber's Name: _____

Company: _____

Address: _____

City: _____ State: _____ Zip: _____

Phone: _____

Fax: _____

E-mail: _____

Racial-Ethnic Background

__ American Indian or native Alaskan

__ Asian American

__ Hispanic

__ White, non-Hispanic

__ Black, non-Hispanic

Gender

__ Female

__ Male