UF UNIVERSITY of FLORIDA
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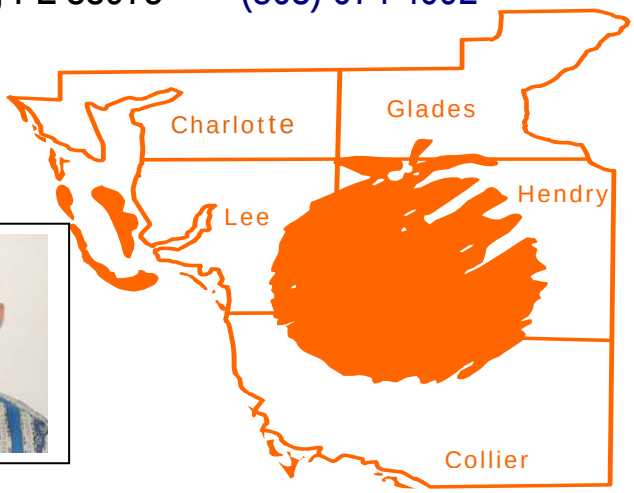
EXTENSION

Institute of Food and Agricultural Sciences

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

Flatwoods Citrus



Vol. 17, No. 12 **December 2014**

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

Have a Happy Holiday Season and a Productive New Year!!!

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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

Wednesday, January 14th, 2015, 10:00 AM – 12:00 Noon
Scouting and Management of Citrus Insect Pests

Location: UF-IFAS Southwest Florida Research and Education Center, Immokalee
Dr. Phil Stansly, Dr. Jawwad Qureshi, Dr. James Tansey

1. Scouting citrus for pests and beneficials
2. Management of Asian Citrus Psyllid in Organic and Conventional Citrus
3. Citrus Health Management Areas: Coordinated Asian Citrus Psyllid Control

2 CEUs for Certified Crop Advisors (CCAs)
2 CEUs for Pesticide License Renewal
Pre-registration is required. No registration fee and lunch is free. To reserve a seat, call 863 674 4092, or send an e-mail to Dr. Mongi Zekri at: maz@ufl.edu

2015 Florida Citrus Show

Wednesday, January 28, 2015
Thursday, January 29, 2015
Havert L. Fenn Center, Fort Pierce
http://www.cvent.com/events/2015-florida-citrus-show/event-summary-9dbcf46205a8473ea8e489ebc510161b.aspx

February 3rd, 2015
Scouting and Managing Citrus Fungal Diseases

Location: UF-IFAS Southwest Florida Research and Education Center, Immokalee
Dr. Megan Dewdney, Dr. Pam Roberts, and Cody Hoffman

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
5. Quadris Top

2 CEUs for Certified Crop Advisors (CCAs)
2 CEUs for Pesticide License Renewal
Pre-registration is required. No registration fee and lunch is free Thanks to Cody Hoffman with Syngenta. To reserve a seat, call 863 674 4092, or send an e-mail to Dr. Mongi Zekri at: maz@ufl.edu

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

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, Not the Immokalee IFAS Center

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

2015 ANNUAL FLORIDA CITRUS GROWERS' INSTITUTE

Date & Time: Tuesday, 7 April 2015, 8:00 AM – 3:45 PM

Location: Avon Park Campus of South Florida Community College

Coordinators: Citrus Extension Agents, UF-IFAS

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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EL NIÑO/SOUTHERN OSCILLATION (ENSO) DIAGNOSTIC DISCUSSION

issued by

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

4 December 2014

ENSO Alert System Status: El Niño Watch

Synopsis: There is an approximately 65% chance that El Niño conditions will be present during the Northern Hemisphere winter and last into the Northern Hemisphere spring 2015.

During November 2014, sea surface temperature (SST) anomalies increased across the central and eastern equatorial Pacific (Fig. 1). At the end of the month, the weekly Niño indices ranged from +0.4°C in the Niño-1+2 region to +1.0°C in the Niño-3.4 region (Fig. 2). The subsurface heat content anomalies (averaged between 180º-100ºW) also increased during November (Fig. 3) as a downwelling oceanic Kelvin wave increased subsurface temperatures in the central and eastern Pacific (Fig. 4). However, the overall atmospheric circulation has yet to show a clear coupling to the anomalously warm waters. The monthly equatorial low-level winds were largely near average, although weak anomalous westerlies appeared in a portion of the eastern tropical Pacific. Upper level easterly anomalies emerged in the central and eastern tropical Pacific during the month. The Southern Oscillation Index has been somewhat negative, but the equatorial Southern Oscillation Index has been near zero. Also, rainfall continued to be below average near the Date Line and over Indonesia, and near average east of the Date Line (Fig. 5). Although the SST anomalies alone might imply weak El Niño conditions, the patterns of wind and rainfall anomalies generally do not clearly indicate a coupling of the atmosphere to the ocean. Therefore, despite movement toward El Niño from one month ago, the combined atmospheric and oceanic state remains ENSO-neutral.

Similar to last month, most models predict SST anomalies to be at weak El Niño levels during November-January 2014-15 and to continue above the El Niño threshold into early 2015 (Fig. 6). Assuming that El Niño fully emerges, the forecaster consensus favors a weak event. In summary, there is an approximately 65% chance of El Niño conditions during the Northern Hemisphere winter, which are expected 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 8 January 2015. 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

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

WATER WATCH

Keeping an Eye on Water Resources

District-Wide Conditions for November 17, 2014

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

Most of the South Florida Water Management District saw sunny weather and little rainfall during the past 7 days. Water supply demands continue to increase across the District, as is typical during the dry season. Regional water storage areas such as the Water Conservation Areas are receding but remain at favorable levels.

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

Water Levels in Key Locations (November 17)		
Location	Today's level	Water Supply Floor
WCA-1	17.05 feet	14.00 feet
WCA-2A	12.17 feet	10.50 feet
WCA-3A	10.35 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 (Nov. 17)	15.63 feet
Historical Average for Today	14.95 feet
This Date One Year Ago	14.85 feet

# # #

Media inquiries can be directed to:
Gabe Margasak
South Florida Water Management District
Office: (561) 682-2800 or Cell: (561) 670-1245

United States Department of Agriculture
National Agricultural Statistics Service

CITRUS

DECEMBER FORECAST
MATURITY TEST RESULTS AND FRUIT SIZE

Cooperating with the Florida Department and Agriculture and Consumer Services
2290 Lucien Way, Suite 300, Maitland, FL 32751
(407) 648-6013 · (855) 271-9801 FAX · www.nass.usda.gov/fl

December 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 4 Percent
Florida Tangelo Production Down 11 Percent
FCOJ Yield Remains 1.60 Gallons per Box (42° Brix)

2014-2015 SEASON FORECAST DATES

January 12, 2015	April 9, 2015
February 10, 2015	May 12, 2015
March 10, 2015	June 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	2012-2013	2013-2014	November	December
	(1,000 boxes)	(1,000 boxes)	(1,000 boxes)	(1,000 boxes)	(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]	58,000	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**	**800**
Tangerines					
Florida-All	**4,290**	**3,280**	**2,900**	**2,600**	**2,500**
Early [4]	**2,330**	**1,910**	**1,750**	**1,500**	**1,400**
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	18,820	18,720

[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 forecast in October. 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 December forecast has deviated from final production by an average of 5 percent, with 7 seasons above and 1 below, and with differences ranging from 1 percent below to 16 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 below the minimum and projected to be below 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. Final Navel size is lower than average and final droppage at 21 percent is well above average.

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 less than average and droppage is close to the maximum.

All Tangerines 2.50 Million Boxes

The forecast of all tangerine production is reduced 100,000 boxes to 2.50 million boxes. The reduction affects the early tangerines (Fallglo and Sunburst varieties). The early tangerine forecast is now 1.40 million boxes, consisting of 400,000 boxes of Fallglo tangerines and 1.00 million boxes of Sunburst tangerines. The forecast of the later maturing Honey variety is unchanged at 1.10 million boxes. Projected Honey fruit size is near the minimum, while projected droppage at 42 percent is close to the maximum.

Tangelos 800 Thousand Boxes

The forecast of tangelo production is reduced to 800 thousand boxes. Tangelo final fruit size for the season is below average and approximately 296 pieces of fruit are required to fill a 1-3/5 bushel box. At 15 percent, final droppage is above the maximum.

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.

Maturity

Regular bloom fruit samples were collected on November 24-25, 2014 from groves on established routes in Florida's five major citrus producing areas and tested December 1-3, 2014. All comparisons are made to December 1, 2013. Acid levels are higher for early and midseason oranges, but lower for late oranges and both white and colored grapefruit. Solids (Brix) levels are lower for all varieties. Ratios are lower on all varieties except white grapefruit, which is the same as last season. Unfinished juice per box is higher on all varieties except late oranges, and solids per box is lower on all varieties.

All Indian River comparisons are made to fruit from the other areas for this test period. Indian River fruit has lower acids only on midseason oranges, but has higher Brix levels on all varieties. Ratios are higher on all orange varieties but lower on white and colored grapefruit. Unfinished juice per box is higher only on white grapefruit and solids per box is lower only on midseason oranges.

Forecast Components, by Variety — Florida: December 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	Fruit per tree	Droppage	Fruit per box
	(1,000 trees)	(number)	(percent)	(number)
ORANGES				
Early-midseason	22,707	890	20	287
Navel	970	295	21	139
Valencia	31,190	624	28	235
GRAPEFRUIT				
White	1,199	477	22	117
Colored	3,374	445	22	119

http://www.crec.ifas.ufl.edu/extension/flowerbud/2015/index.shtml

FLOWER BUD INDUCTION ADVISORY #1 for 2014-2015-11/13/14

NOTICE FOR CITRUS EXTENSION AGENTS & SPECIALISTS AND GROWER NEWSLETTERS
The following information has been developed as part of the Decision Information System for Citrus.
L. Gene Albrigo, Horticulturist Emeritus
Citrus Research & Education Center, Lake Alfred, FL

FLOWER BUD INDUCTION ADVISORY #1 for 2014-2015-11/13/14
This is a service to our citrus growers posted on the CREC website. The indicated Expert System on intensity and time of bloom can be accessed at the designated Web Site: http://disc.ifas.ufl.edu/bloom If you are not familiar with the website and flower bud induction in citrus you should read the overview section below the current status paragraph.
Flowering related to the current 2014-15 Crop – There was a light but consistent bloom centered in January that must have been a water stress bloom initiated in November due to the effect of HLB on root systems. There was a flowering cohort toward the end of February after nearly 900 hours of inductive temperature induction (< 68 degrees F). Remnants of the January bloom overlapped with the beginning of this cohort. A second regular cohort occurred toward the end of March after more than 1200 hours of induction had occurred, resulting in an extended bloom. The January bloom with associated rains may have been the inoculum source for extensive PFD seen in the regular bloom since little PFD has been seen the past few years. In spite of PFD, NASS predicted a larger crop for this harvest season than the previous year supporting the effect of the high induction levels.

Flower bud induction status 2014-15 - This is supposed to be a weak ENSO winter with more cool temperature accumulation and rainfall than last year. Currently, citrus locations have accumulated low, inductive temperatures, < 68 degrees F, of nearly 300 to 400 hours from southern to northern areas, respectively. The next 7 days will be intermediate for cool temperature accumulation with about 70 to 110 hours, south to north. Continued accumulation of cool temperatures and prevention of growth during a winter warm spell is very important for good 2015-16 citrus production. Another 4+ weeks with 80 to 100 hours/week of inductive temperatures will give the trees a low economic level of flowering. Normal healthy trees could have their induction boosted by applying some drought stress. Unfortunately, with vulnerable root systems associated with HLB you shouldn't risk heavier preharvest fruit drop of the current crop by using water stress to prevent unwanted early

vegetative growth and enhance induction of flowers (see later section on use of drought stress). Trees will be very vulnerable to growth stimulation by a warm period after they accumulate 300-400 hours of cool temps if soil moisture is adequate. Keep track of induction hours in your area and watch for projected warm periods from the weather services. The next advisory will be after December 2nd unless a warm period is predicted or other unusual events occur. Remember drought stress adds to flower bud induction, but it also increases drop of the current crop.

Overview of flower bud induction in Florida – Citrus flower bud induction starts in the fall and usually is completed by early January. Low temperatures first stop growth and then promote induction of flower buds as more hours of low temperatures accumulate (below 68 degrees F, 19 ^{0}C). Periods of high temperatures in winter can then initiate bud differentiation which after sufficient days of warm winter-springtime temperatures leads to bloom. The meteorologists predict that this winter in Florida will be a weak ENSO year, below average temperatures and higher than average rainfall. Under these conditions, enough hours of low temperatures below 68 degrees F. will usually accumulate to induce an economic level of flower buds, but intermediate warm periods during the winter can lead to multiple flower cohorts and a very prolonged bloom. Other conditions that can interfere with good flower bud induction include: 1) exceptionally high previous crop or 2) excessive leaf loss from hurricanes, freezes or other causes (canker, HLB). Excessive leaf loss leads to low carbohydrate levels in developing buds which reduces their ability to become flower buds. None of the adverse climatic conditions appear to be in play for the coming season's flower bud induction. The biggest concern may be reduced available carbohydrates because of HLB.

Under normal Florida weather conditions but with a moderate to heavy previous crop, sufficient flower bud induction should be achieved when total accumulated hours of low temperatures exceed 800 hours below 68 degrees F. If the crop load is light, sufficient flower bud induction may occur after 700-750 hours of accumulated low temperatures. A warm period of 7 to 12 days, with maximum temperatures from 80 to 85 degrees F., can trigger growth (bud swelling) if a minimum total hours of low temperatures have accumulated (300-400 hours below 68 degrees F). Later in the winter when the accumulated cool temperature induction hours are higher, fewer days and lower daytime highs (75 degrees F.) are required in a warm period to stimulate growth of buds. Weather information relative to Florida citrus flower bud development for the current and several previous years (back to 1998) can be obtained from the Florida Automated Weather System (fawn.ifas.ufl.edu) for locations near you. A 7 day forecast from the National Weather Service predicts Florida weather for several sites around the citrus belt for the next week. Find this information at:
http://www.nws.noaa.gov/mdl/forecast/text/state/FL.MRF.htm. This is an easy way to see if a warm period, which could trigger flower bud growth, is predicted for your specific area in Florida.

Some flower buds will be induced in the range of 300 to 450 accumulated hours < 68 degrees F. Warm events after these levels of induction result in weak flowering intensity, and therefore many buds remain that can be induced by later cool periods, or these buds may sprout as vegetative shoots if warm weather continues and the trees are well irrigated. The first situation results in multiple cohorts of flower buds developing to different bloom dates. The second condition leads to low flowering-fruit set and excessive early spring vegetative growth. During the years from 1963 to 2003, multiple blooms occurred in over half of the years. Historically, the time period in which an early warm period (7-12 day) can lead to an initial low number of buds growing and flowering is roughly mid-

November to early-December. Then after more cool temperatures additional flower buds are induced and a later warm period starts their growth. This pattern can repeat itself, often leading to 3 blooms in the same season.

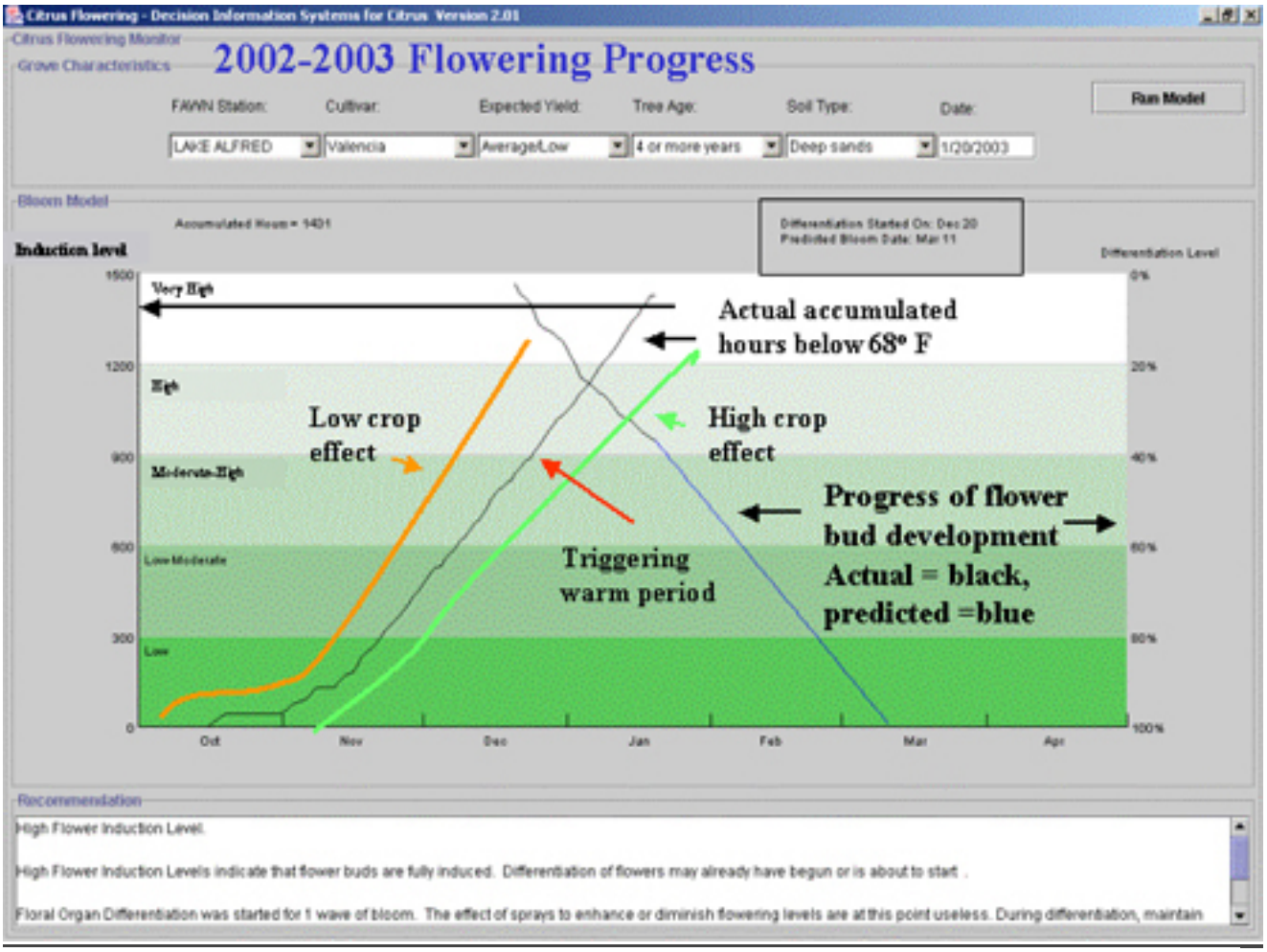
Presently, the only management tools available to eliminate or reduce the chance of multiple blooms are sufficient drought stress to stop growth or a timely gibberellin (GA) spray just before initiation of the first wave of flower bud growth. Water stress may be provided by stopping irrigation well before these predicted warm periods occur. If the warm periods(s) are of the typical 7 to 10 day duration, a coincident short period of drought stress will have little impact on current crop development or fruit quality in healthy trees. Sufficient drought stress may be interpreted as leaf wilt observed by 10 or 11 am, but leaves recovering by early the next morning. If no rains interrupt a drought stress condition in citrus trees, buds will not grow in response to high temperatures. If a warm period has passed, trees again can be irrigated to minimize current crop stress. Although no weather prediction is guaranteed, rains in the winter usually come on the fronts for cool periods. Sufficiently cool temperatures after a cold front rain will usually prevent growth even though soil moisture is adequate for growth. Since winter rains usually occur just before cool temperatures, the chances that drought stress will prevent an early flower bud differentiation event are reasonably good for many warm periods. Even so, growers in some growing districts have often found it difficult to maintain winter drought stress.

In the shallow soils of bedded groves, it is relatively easy to create sufficient water stress to suppress growth by withholding irrigation for a few days if no rains occur. In deeper, sandy soils, 2 or more weeks without irrigation or rainfall may be required. To minimize the time required for soil to dry sufficiently to initiate water stress, the soil should be allowed to dry out by mid-November so that trees show wilt by mid-day. For bedded groves, minimum irrigation can then be applied at low rates as needed until a weather prediction indicates a warm period is expected. At this time, irrigation should be shut down. For deep sands, the soil needs to be dried out and kept nearly dry below 6 to 8 inches of depth until at least Christmas so that no growth can occur. Minimum irrigations that re-wet perhaps the top 6 to 8 inches of the root zone may minimize excessive drought, while allowing quick return to a water stress condition if a high temperature period is forecast. Soil moisture monitoring can help to achieve these goals. Prolonged late-fall, early-winter drought may be risky for ‘Hamlin’ or other early maturing cultivars not yet harvested that tend to drop fruit near harvest. In recent studies, Valencia trees in Central Florida have had good flowering and no apparent impact on current crop when irrigation was stopped in early December and resumed in the spring. **Now in the face of HLB and related preharvest drop, it may not be a good idea to allow trees to become drought stressed.**

Application of a GA spray is an alternative. GA will reverse induction and knock out a weak first flower initiation, but it has to be applied just before or as the warm period starts. If induction level is above 600 hours the spray will not completely stop all of the flowering, but a more concentrated flowering should occur after the second warm period. The GA application will work better if the warm period occurs after only 400 to 450 hours of cool temperatures.

Much of what has been stated above has now been incorporated into a ‘Flowering Expert System for Florida Citrus’. Figure 1 represents the different aspects of flower induction as depicted by the software program. The program gives an average bloom situation represented by the shades of green to white, vegetative to heavy flowering, respectively. If the current crop is very heavy, then more cool induction is needed to compensate for the crop load effect. If the current crop is lighter or tree condition better, then fewer total cool temperature hours are needed for an equal level of flowering. Recommendations (bottom

text) do consider the current crop level in assessing when action should be taken to try to prevent or to promote initiation of the flower bud growth process. The recommended actions are for healthy trees and may poorly apply to HLB affected trees, today's typical Florida citrus tree. The system is available on-line: http://disc.ifas.ufl.edu/bloom . The on-line version is in black and white and does not list the accumulated hours of cool temperatures or the predicted bloom date.



You must interpret those from the intersections with the graph axis. An improved on-line version is being developed this season.

Additional advisories will follow this preliminary one, roughly bi-weekly, and update the reader on accumulating hours of related cool or warm temperatures and other weather effects on flower bud induction. Methods for enhancing (urea or PO3 sprays) or reducing (GA3 sprays) flowering intensity as conditions and cultivars dictate will be discussed in later advisories. Read the archived advisories from previous years (link at top of this page) for more background.

See the 2012-2013 background introduction for previous responses **(FLOWER BUD INDUCTION ADVISORY #1 for 2012-2013)**

If you have any questions, please contact me (albrigo@ufl.edu).

FLOWER BUD INDUCTION ADVISORY #2 for 2014-2015-12/03/14

NOTICE FOR CITRUS EXTENSION AGENTS & SPECIALISTS AND GROWER NEWSLETTERS
The following information has been developed as part of the Decision Information System for Citrus.
L. Gene Albrigo, Horticulturist Emeritus
Citrus Research & Education Center, Lake Alfred, FL

This is a service to our citrus growers posted on the CREC website. The internet Expert System on intensity and time of bloom can be accessed anytime: http://orb.at.ufl.edu/DISC/bloom This website was temporarily down but is running now.

Current Status: The projection is for a weak ENSO winter with slightly above average cool temperature accumulation. The accumulated hours below the threshold for induction, <68 o F, through December 1 were <530 to 730 from southern to northern citrus areas. Another 35 to 75 hours are predicted for the next week. The minimum hours in southern areas will be about 250 hours less than the desired 850 after next week. So far, the Indian River has a few more inductive hours than Immokalee this year.

In order to improve the induction level beyond a minimum, trees need to remain at rest at least through Christmas. Cool temperature accumulation or drought stress can increase induction levels. Three more weeks of cool temperature induction may add another 250-300 hours, which would bring the East Coast growing areas to near 850 hours, an acceptable level of flowering for an economic crop. A level of 900 hours or more should be reached in most growing areas north of Sebring in three more weeks if cooler temperatures persist.

In Central to southern growing areas daytime high temperatures are projected to be in the low-80 degree range for the next 5 days. If temperatures are higher than this or high temperatures continue for more days, shoot terminal buds may initiate growth at the current induction levels. Induction levels are now high enough that a warm period will easily initiate bud growth in the 1st and 2nd terminal buds. At a minimum level of bud induction when bud growth starts, the flower buds will have few flowers and more leaves.

Because of preharvest fruit drop associated with drought stress, an alternative is to enhance flower bud induction with a stress inducing spray of urea or PO_3 at the beginning of a winter warm period after more than 600 hours of cool temperatures accumulate.

This can boost flowering levels as if additional cool temperatures had occurred. A flower bud induction enhancement spray of urea or a phosphorous acid product sprayed during the early part of the warm period probably will be effective. Growers can consider applying either 53 to 60 lbs of foliar urea/acre or a PO_3 product at 3 pints to 2 quarts per acre depending on which product is used (60 % P (3pts) or if 26 % P (2 qts)). The chosen material should be applied in 80 to 125 gal of water early in a warm period. These products apparently increase the stress level and enhance the amount of flowering induced by the cool temperatures. We have not tested these sprays on HLB affected trees, but these trees, if not severely declined, may also respond. A downside of this is the additional cost with productions costs already very high due to HLB related treatments.

If cool temperatures continue for 3 weeks, flower enhancing sprays may not be needed even in southern areas. Trees with weak root systems (all HLB trees) may express water stress which would enhance flowering. On the other hand weak root systems from HLB could also be a problem. Poor production of cytokinins by roots in the spring minimizes final flower development. Unfortunately our knowledge of how HLB alters tree physiology is very limited and we can only guess at much of the response.

Moderate drought stress increases cold hardiness on healthy trees, also increases flower bud induction and prevents bud growth in warm weather. Flowers are visible on some limbs in trees indicating that at least some parts of trees are stressed. This is not as heavy as last year's January bloom. The HLB associated drought stress is likely to increase preharvest fruit drop now, particularly in Hamlins and early mandarins with HLB, as long as rain frequency is not steady.

Don't forget that winter freezes occur most often between Christmas and 15 January. However, an El Nino year is less likely to have freeze events. Watch the weather for warm periods and freeze potential.

I will post an advisory before 20 December, earlier if a major change in weather is predicted. If you have any questions, please contact me (albrigo@ufl.edu).

HLB ESCAPE TREES

To accelerate citrus gene discovery for HLB tolerance/resistance, UF-IFAS Citrus Researchers and Extension Agents are working closely with the citrus industry. They would like to know about trees that appear to be doing better than their cohorts in groves declining from HLB. We need your help in reporting to us about escape trees or potential survivor trees in your groves. Please contact Mongi Zekri (maz@ufl.edu or 863 674 4092) or any other citrus extension agent to determine if your trees meet this research criterion.

COLD HARDINESS AND COLD PROTECTION

Two major environmental factors in Florida citrus that regulate cold hardiness are temperature and water.

At 55^0 F, citrus plant growth slows. As temperatures remain below 55^0 F, citrus trees will continue to acquire acclimation to these cooler temperatures. This process is reversible during warm winter periods, and de-acclimation (loss of acclimation) can occur. The greatest amount of citrus acclimation occurs during consistently cool fall and winters. Once de-acclimation occurs citrus trees will generally not re-acclimate to the same level prior to the onset of de-acclimation.

Irrigation and fall/winter rainfall can have a pronounced effect on the citrus acclimation process. Drought induced stress has been shown to increase the tolerance of citrus trees to freezing temperatures when compared to well watered or over watered citrus trees in Florida. However, excessively drought stressed trees are more susceptible to freeze damage.

Critical Temperatures for Florida Citrus

It is very important to know the critical temperature at which freezing temperatures can damage citrus. Minimum temperature indicating thermometers are a wise investment for any grower concerned with freeze/frost protection. Thermometers should be installed in the coldest grove locations. They should be placed at a height of 42 inches (4.5 ft) on a stand, sheltered at the top and facing north. In citrus trees, there can be a great deal of variation in the minimum temperature at which plant damage will occur.

The reference temperature and duration for the initiation of the freezing process in round oranges is 28^0 F for four hours. Tangerines and fruit with smaller mass would receive freeze damage after shorter durations, while grapefruit would require longer durations.

Minimum temperatures of 26^0 F will damage fully mature, harden-off leaves that have not received any acclimation. Minimum temperatures of 30^0 F can significantly damage unhardened new flush leaves. Leaves that have received extensive acclimation have been shown to survive temperatures as low as 20^0 F in Florida.

Protecting citrus trees from cold damage

Cultural practices can have a major influence on the cold hardiness of citrus trees. A clean, hard-packed soil surface intercepts and stores more solar radiation during the day and releases more heat at night than a surface covered with vegetation or a newly tilled area. Irrigation should be applied minimally during the fall and winter. Reducing irrigation results in an increase in the cold tolerance of citrus trees and enhances tree stress resulting in an increase in the formation of flower buds. Excessive application of nutrients should be avoided late in the fall especially with young citrus trees. Heavy hedging or topping during the winter can reduce citrus cold hardiness by reducing canopy integrity that would trap heat released by the soil. This should be avoided.

Water from micro sprinkler irrigation protects young trees by transferring heat to the tree and the environment. The heat provided is from two sources, sensible heat and the latent heat of fusion. Most irrigation water comes out of the ground at 68° to 72°F, depending on the depth of the well. The major source of heat from irrigation is provided when the water in the liquid form changes to ice (latent heat of fusion).

As long as water is constantly changing to ice, the temperature of the ice-water mixture will remain at 32°F. The higher the rate of water application to a given area, the greater is the amount of heat energy that is applied. When expecting a freeze, turn on the water early before the air temperature reaches 32^0F. Remember that in cold pockets, the ground surface can be colder than the air temperature reading in a thermometer shelter. Once irrigation has begun, the system must run for the duration of the time plant temperatures are below the critical temperature. Growers are recommended to use the information at the FAWN website (http://fawn.ifas.ufl.edu) to determine when it would be safe to turn off or on their micro-sprinkler irrigation system. For more details, go to http://edis.ifas.ufl.edu/HS179, http://edis.ifas.ufl.edu/CH182, http://edis.ifas.ufl.edu/CH054

In bedded groves to provide additional cold protection, water should also be pumped high in the ditches the day before and during the time of freezing weather.

FAWN (Florida Automated Weather Network)

Go to http://fawn.ifas.ufl.edu/

Click on Tools, then click on Cold Protection Toolkit or go directly to
http://fawn.ifas.ufl.edu/tools/coldp/

Then Select a Tool.

New! **Graphic Forecast data for FAWN sites**

National Weather Service (NWS) forecast data for next 96 hours. Updated hourly.

Fruit Frost Station Forecasts

With the demise of the NWS agricultural program in April of 1996 the minimum temperature forecast and winter summaries went away. An opportunity now exists to once again provide temperature forecasts for the old Fruit Frost locations with the development of the Point forecast by NWS.

Minimum Overnight Temperature

Estimates based on the Brunt equation and the air & dew point temperatures at sunset.

Forecast Tracker for FAWN sites

Plots the actual temperature and forecasted temperature for the previous twenty four (24) hours and the forecasted temperature for the next twenty four (24) hours in order to show how well the forecast is tracking the actual temperature. The Forecast Tracker is easy to use with a drop down menu to select the desired FAWN site.

FAWN does not make weather forecasts, but utilizes the National Weather Service products, especially the pin point forecasts. For more information see **JETSTREAM, an online weather school, Pinpoint Forecasts.**

Evaporative cooling potential

Determining the risk of using irrigation for cold protection, and see the risk calculated at FAWN stations.

There is always a risk when using water systems, micro-sprinkler or conventional sprinkler, for cold and/or frost protection. Low humidity and wind can produce evaporative cooling which can chill plant surfaces to the wet bulb temperature. Dry and windy conditions can result in wet bulb temperatures 5F to 6F degrees lower than air temperature. Therefore, wetted plant surfaces that experience evaporation would be 5F to 6F degrees cooler than air temperature. Evaporative cooling may result in plant damage when water is used for cold protection during dry windy conditions. Evaporative cooling should always be taken into consideration.

It is possible that, on nights when temperatures are close to critical levels, introduction of water could produce more damage than would result if no action was taken!

Wet-Bulb Based Irrigation Cutoff Temperature

The safe cutoff temperature based on current FAWN conditions.

Institute of Food and Agricultural Sciences
UF-IFAS Hendry County Extension Service

Post Office Box 68
LaBelle, FL 33975-0068

Information for the next Certified Pile Burners Course:

The Florida Forest Service and University of Florida Cooperative Extension Service will be conducting a Certified Pile Burners Course on Thursday, February 5, 2015. This course will show you how to burn piles ***legally, safely and efficiently***. Most importantly, it could save a life. If you burn piles regularly, don't put off registering for this training. When the weather is dry, certified pile burners will receive priority for authorization to burn. Also, certified pile burners are allowed to burn up to two hours longer per day and get multiple day authorizations. Don't wait. The number of trainings offered and attendance at each training is LIMITED. This training will be held from 8:30 am till 4:30 pm at the *Hendry County Extension Office in LaBelle, Florida*. Included are a registration form and program agenda.

Registration is required to attend and class size is limited. To attend please send the following information (see form on next page):

1. Your full name (as wanted on your pile burning certificate).
2. Your mailing address (where you want the certificate mailed).
3. Your Florida Forest Service Customer Number (It is the number that you are required to give the FFS when you call in for your burn permits. If you do not know it please call the local FFS office and ask them to create one for you).
4. Your email address (if you have one) and/or contact phone number.
5. A check made out to: Hendry County 4-H for $50.00.

The first fifty individuals to provide these five requirements will be registered; there will be a 7-day non-refundable fee limit. If you do not make the training and did not contact our office at least one week before the class, you will not receive a refund. There will be a test at the end of the session. You must receive a grade of 70% or higher on the exam and demonstrate a proper pile burn with your local FFS office to become certified. Once you are certified it will be noted with your customer number, thus it is important for us to have the proper number. If you do not have a customer number the FFS office will set one up for you. Fill out the registration form on the next page and return as directed.

Sincerely,

Dr. Mongi Zekri

For Questions Contact: Dr. Mongi Zekri at maz@ufl.edu or 239 595 5494

Registration Form

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

Florida's Certified Pile Burner Program

Thursday, February 5, 2015

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

Please send this form and a check for $50.00 made payable to:

"Hendry County 4-H"

Mail to: Dr. Mongi Zekri
Hendry County Extension Office
P. O. Box 68
LaBelle, FL 33975

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

Name

Mailing address

Email address

Phone Number

FFS Customer Number

Florida's Certified Pile Burner Training
Thursday, February 5, 2015

Hendry County Extension Office

P.O. Box 68, LaBelle, FL 33975
1085 Pratt Blvd., LaBelle, FL 33975
863 674 4092
See: **http://directory.ifas.ufl.edu/Dir/searchdir?pageID=2&uid=A36**
for directions

1. Opening Comments and Introduction	08:30 – 09:10
2. Fire Weather	09:10 – 09:50
3. BREAK	**09:50 – 10:00**
4. Smoke Management	10:00 – 11:20
5. Open Burning Regulations	11:20 – 12:15
6. LUNCH (provided)	**12:15 – 01:15**
7. Planning and Implementation	01:15 – 02:30
8. Safety	02:30 – 03:10
9. BREAK	**03:10 – 03:20**
10. Public Relations	03:20 – 04:00
11. Wrap Up & **Test**	04:00 – 04:30

Please bring a Pencil for the Exam!

Florida's Certified Pile Burner Training
Frequently Asked Questions

Q: Why should I be a certified pile burner?

A: Certified pile burners are trained to burn piles ***legally, safely and efficiently***. Most importantly, it could save a life. Also, when the weather is dry, certified pile burners will receive priority for authorization to burn by the Florida Forest Service (FFS). Also, certified pile burners are allowed to burn up to two hours longer per day and get multiple day authorizations.

Q: What is a Pile Burner Customer Number?

A: When you call the FFS for an authorization to burn, you will be assigned a personal customer number. This number references your information so it doesn't need to be gathered each time you call for an authorization. You must have your individual FFS customer number in order to be certified.

Q: Is there a test?

A: Yes, the test is 20 questions and open-book. You must receive a score of at least 70% to pass.

Q: What if I don't pass?

A: Very few people fail the test but if you do, you will be provided another opportunity to take the test at a later date. If you fail the second time, you must re-register and take the training again.

Q: Why do you ask for my email on the application form?

A: Email is the fastest and most convenient method to inform registrants of their registration status. If no email address is provided then all correspondence will be sent through the federal mail. This can take several days to relay messages and this may not be practical if changes are made to the course schedule or for last minute registrations.

Q: How much does it cost to register for the training?

A: Registration for the training is $50 per person and includes lunch, training materials and testing.

Q: How long does my certification last, and how long do I have to complete the certification from the time I finish the class?

A: As long as the person with the certification uses their number at least 5 times in a period of 5 years their certification will not expire under the current program. You MUST complete the certification burn within a year of taking the class.

Q: Will certified burners be notified if their certification expires?

A: Yes, notification will be sent out to them to let them know of their upcoming certification expiration date.

Q: Will I be certified at the end of the one day training?

A: No, you will need to follow the written instructions that you will receive from the FFS to become certified. You will need to complete a simple burn plan, have it reviewed and approved locally by the FFS and also have the burn itself reviewed and approved by the FFS.

Q: Is there a minimum age to be a certified pile burner?

A: Yes, you must be at least 18 years old to take the test and be a certified pile burner.

UNIVERSITY OF FLORIDA | EXTENSION
Institute of Food and Agricultural Sciences

Hendry County Extension • P.O. Box 68 • LaBelle, Florida 33975-0068 • (941) 674-4092

Flatwoods Citrus

TOPICS DISCUSSED IN THE FLATWOODS CITRUS NEWSLETTER -YEAR 2014-

January	Gulf CHMAs Dormant Sprays for Psyllids; CHMAs Spray Options; Hedging and Topping Citrus Trees; Factors Affecting Citrus Fruit Production and Quality; Organic Agriculture
February	Fungicide Effectiveness; Alternaria Brown Spot; Citrus Scab; Nutrition Of Citrus Trees; Microsprinkler Irrigation & Fertigation; Mobile Irrigation Lab; Acidification To Remove Mineral Deposits In Irrigation Systems; Citrus Health Benefits
March	Plant Growth Regulators (PGRs); Drought; Chemical Thinning of Tangerines With NAA; Plant Growth Regulators for Citrus in California; Plant Growth Regulators in Florida; Spider Mites; Management of Citrus Black Spot; Pollination of Citrus by Honey Bees; Florida Citrus Production Statistics
April	Foliar Feeding; Pesticide Recordkeeping Benefits & Requirements; Gulf CHMAs- Gulf CHMAs Coordinated Spray;
May	Prepare and Stay Aware!; Hurricane Preparedness; Living with Lovebugs; Citrus Rust Mites; Do not Forget Greasy Spot; Water Quality: Alkalinity and Hardness; Neutralizing Excess Bicarbonates from Irrigation Water in Florida
June	Causes and Prevention of Emitter Plugging in Microirrigation Systems; Water Quality: Alkalinity and Hardness; Water Quality: Alkalinity and Hardness; High Bicarbonates in Irrigation Waters; Citrus Fertilizer Management on Calcareous Soils; Fertigation Practical Example; Leaf and Soil Sampling and Analyses to Adjust Fertilizer Programs
July	Brown Rot Management; Flooding Injury; Drainage for Flatwoods Citrus; Drainage System; Biosolids; Foliar Nutrition
August	Danger of Heat Stress**;** Managing Heat Stress; Spray Drift of Pesticides; Aquatic Weeds in Flatwoods Citrus Groves; Weed Management in Citrus Groves; Phytophthora
September	Fertilizer Formulations and Applications; Where Florida's Water Comes From?; Fall Nutrition Of Citrus Trees; ProGibb; Resetting In Citrus Groves; Young Tree Care;
October	Top Varieties and Top Rootstocks; Top 10 Health Benefits of Orange Juice
November	Drought; Saline Irrigation Water: Impacts on Citrus Production; Microsprinkler Irrigation & Fertigation; Mobile Irrigation Lab; What, When, How Often and What to Spray for ACP Control;
December	Flower Bud Induction Advisory; Cold Hardiness And Cold Protection; FAWN (Florida Automated Weather Network)

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