

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

# Flatwoods Citrus



**Vol. 20, No. 11**      **November 2017**

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



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# IMPORTANT   EVENTS

## Seminar

### Citrus Health Management Areas (CHMAs)



### Gulf Citrus Health Management Area (CHMA)

Location: Southwest Florida Research and Education Center, Immokalee

Date & time: Tuesday, 14 November 2017, 10:00 AM – 12:10 PM

Speakers: Brandon Page, Ozgur Batuman, Callie Walker, Joby Sherrod, and Phil Stansly

Program Coordinators: Mongi Zekri and Ron Hamel

Program Sponsors: Sam Monroe with Nichino, Morgan McKenna with Syngenta, Stacey Howell with Bayer, Adrian Jahna with BASF, Craig Noll with Nufarm, Sarah Markle with Valent, Eric Hammons with Marrone Bio Innovations

2 CEUs for certified crop advisors (CCAs)

1.5 CEUs for pesticide license renewal

**Pre-registration is required.** No registration fee and lunch is free. To reserve a seat, RSVP to **Bernadette Rashford** at [bernadette\\_rashford@embarqmail.com](mailto:bernadette_rashford@embarqmail.com)

| <u>Time</u> | <u>Presenter</u> | <u>RemlaBenYala.1950</u>   |
|-------------|------------------|--|
| 10:00-10:05 | Mongi Zekri      | Welcome, Announcements & Introduction  |
| 10:05-10:10 | Ron Hamel        | Meeting Objectives and History of Area Wide Asian Citrus Psyllid Management in the Gulf Region |
| 10:10-10:35 | Brandon Page     | Statewide CHMA Program: Keys to Success  |
| 10:35-10:50 | Ozgur Batuman    | Slowing the Spread of Citrus Black Spot in Florida: What More Can Be Done?                     |
| 10:55-11:00 | xxxxxxxxxx       | Break  |
| 11:00-11:15 | Callie Walker    | Monitoring CHMA Results in SW Florida: What Does the Data Tell Us?                             |
| 11:15-11:30 | Joby Sherrod     | A. Duda & Sons' Asian Citrus Psyllid Control Program   |
| 11:30-11:45 | Phil Stansly     | Efficient and Cost Effective ACP Management: Staying within Budget.                            |
| 11:45-12:10 | Sponsors         | Updates on Products for ACP Control  |
| 12:10 PM:   | Lunch            |  |

# Seminar

## Title: Breeding Citrus for HLB Tolerance

Location: Southwest Florida Research and Education Center, Immokalee

Date & time: Wednesday, 20 December 2017, 10:00 AM – 12:00 Noon

Speakers: Dr. Jude Grosser and Dr. Fred Gmitter, UF-IFAS

Coordinator: Dr. Mongi Zekri, UF-IFAS

Program Sponsors: Todd Wilson and Jack Zorn with Tiger-Sul and Ward Gunter with ICL Specialty Fertilizers

**Pre-registration is required**. No registration fee and lunch is free. To reserve a seat, RSVP to **863 674 4092** or e-mail **Dr. Mongi Zekri at maz@ufl.edu**

2 CEUs for Certified Crop Advisers (CCAs)

### **Agenda**

----10:00 AM – 10:55 AM

#### **ROOTSTOCKS AND GENETIC X NUTRITIONAL INTERACTIONS AND IMPACTS ON SCION PERFORMANCE**

**Variation in Rootstock Responses to HLB in ongoing field trials**

**Screening new rootstock candidates directly for HLB tolerance**

**Effects of HLB on root nutrition – secondary and micronutrient deficiencies**

**Emerging successful nutrition programs focusing on root health**

**Dr. Jude Grosser, UF-IFAS**

**10:55 AM – 11:05 AM Break**

----11:05 AM - 12:00 Noon

#### **DEVELOPMENT OF HLB-TOLERANT CITRUS VARIETIES AND ROOTSTOCKS**

**Identification of natural variation for HLB sensitivity**

**Breeding and potential mutant selection**

**Characterization of tolerance mechanisms by genetic and anatomical analyses**

**Potential applications of GMO or CRISPR technologies, and associated challenges**

**Dr. Fred Gmitter, UF-IFAS**

# Workshop

## **All You Need to Know About Scouting and Management of Citrus Insect Pests**

Date: Wednesday, **January 17, 2018**, Time: **9:00 AM – 1:00 PM**

Location: Immokalee IFAS Center

Program Coordinator: Mongi Zekri, UF-IFAS

Program Sponsor: Sam Monroe with Nichino

### **Agenda**

----9:00 AM - 10:00 AM

1. Scouting citrus for pests and beneficials

Spider mites, rust mites, weevils, citrus leafminer, psyllid, scale insects, other pests

**Dr. Phil Stansly, UF-IFAS**

----10:00 AM - 11:00 AM

2. **Chemical and Biological Control of Asian Citrus Psyllid**

Psyllid suppression, Predators, Parasitoid Tamarixia radiate, Effect on Yield

**Dr. Jawwad Qureshi, UF-IFAS**

### **11:00 AM – 11:10 AM Break**

----11:10 AM - 11:40 AM

3. Scouting and Management of Citrus Rust Mites (CRM)

Scouting methods, new products for CRM control

**Barry Kostyk, UF-IFAS**

----11:40 AM – 12:00 Noon

4. 2016 Nichino Citrus Product Update

Portal citrus pests controlled, Apta citrus pests controlled, Portal and Apta as part of your pesticide resistance management program

**Dr. Scott Croxton, Nichino**

**3 CEUs for Certified Crop Advisors (CCAs)**

**3 CEUs for Pesticide License Renewal**

**Pre-registration is required.** No registration fee and lunch is free Thanks to Sam Monroe with Nichino. To reserve a seat, call 863 674 4092, or send an e-mail to Dr. Mongi Zekri at: [maz@ufl.edu](mailto:maz@ufl.edu)

## Annual Certified Pile Burners Course in SW Florida

Wednesday, 14 February 2018

**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.

**Registration fee: \$50**

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

Send your registration form and check as soon as possible. This class usually gets full 3-4 weeks before the event.

Location: *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.**

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 8:00 am till 4:30 pm at the **Southwest Florida Research and Education Center in Immokalee.**

[Detailed information including registration is attached here in this newsletter issue.](#)



# 2017 - 2018 WINTER WEATHER WATCH PROGRAM

NOVEMBER 15, 2017 TO MARCH 15, 2018  
REGISTRATION FEE: \$100.00



It's once again time to register for the upcoming 2017 - 2018 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.

---

## 2017 - 2018 Winter Weather Watch Program

NAME: \_\_\_\_\_ PHONE NUMBER: \_\_\_\_\_

COMPANY: \_\_\_\_\_

MAILING ADDRESS: \_\_\_\_\_

EMAIL ADDRESS: \_\_\_\_\_

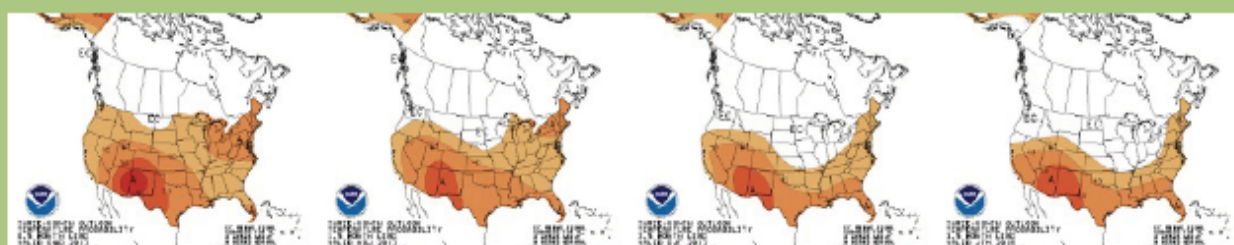
CITY: \_\_\_\_\_ ZIP CODE: \_\_\_\_\_

### 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**

# Winter Weather Watch



Polk County Cooperative Extension Service

Phone: 863-519-1052

Email: [wcoswalt@ufl.edu](mailto:wcoswalt@ufl.edu)



## UF/IFAS Polk County Cooperative Extension Service

The 2017 - 18 version of the Winter Weather Watch will begin on November 15, 2017. Time is short so send in your subscription form to receive timely agricultural winter weather forecasts and information.



The 2017-18 edition of the Polk County Winter Weather Watch program will begin on November 15, 2017. 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 provided by our own meteorologist Fred Crosby. 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 2017-18 Winter Weather Watch manual. You will also have access to weather data from seven Polk County Citrus Extension Weather Stations.

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.

# FORECAST SCHEDULE

| Forecast Product                    | Above 32 ° F                 | 32°-29°F                     | Below 28° F                  |
|-------------------------------------|------------------------------|------------------------------|------------------------------|
| <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 &amp; 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>Friday 5:00 p.m.</i>      | <i>Friday 5:00 p.m.</i>      | <i>Friday 5:00 p.m.</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>       |



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If you would like to be among them, please contact me at 863 674 4092 or [maz@ufl.edu](mailto:maz@ufl.edu)



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# EL NIÑO/SOUTHERN OSCILLATION (ENSO) DIAGNOSTIC DISCUSSION

issued by

## CLIMATE PREDICTION CENTER/NCEP/NWS

12 October 2017

### ENSO Alert System Status: [La Niña Watch](#)

**Synopsis:** La Niña conditions are favored (~55-65%) during the Northern Hemisphere fall and winter 2017-18.

During September, ENSO-neutral conditions were reflected in near-to-below average sea surface temperatures (SSTs) across most of the central and eastern Pacific Ocean. The weekly Niño indices were volatile during the month, with negative values increasing to near zero during the past week in the Niño-4, Niño-3.4, and Niño-3 regions. In contrast, sub-surface temperature anomalies were increasingly negative during September, reflecting the shallow depth of the thermocline across the central and eastern Pacific. Also, convection was suppressed near the International Date Line and enhanced near Indonesia. Over the western equatorial Pacific Ocean, low-level trade winds were anomalously easterly and upper-level winds were anomalously westerly. Overall, the ocean and atmosphere system remains consistent with ENSO-neutral, although edging closer to La Niña conditions.

For the upcoming Northern Hemisphere fall and winter 2017-18, a weak La Niña is favored in the dynamical model averages of the IRI/CPC plume and North American Multi-Model Ensemble (NMME). Several models indicate a period of near-average Niño-3.4 values in the upcoming weeks, but then predict reinvigorated growth of negative SST anomalies across the equatorial Pacific Ocean. These forecasts are supported by the ongoing easterly wind anomalies across portions of the Pacific Ocean and the reservoir of below-average subsurface temperatures. In summary, La Niña conditions are favored (~55-65%) during the Northern Hemisphere fall and winter 2017-18 (click [CPC/IRI consensus forecast](#) for the chance of each outcome for each 3-month period).

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 9 November 2017. 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](mailto:ncep.list.enso-update@noaa.gov).

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



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 **Wednesday, February 14, 2018**. 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 **Southwest Florida Research and Education Center, Immokalee, 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,

**Mongi Zekri**

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

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**Registration Form**

**Florida's Certified Pile Burner Program**  
*Wednesday, February 14, 2018*

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

---

Name

---

Mailing address

---

Email address

---

Phone Number

---

Florida Forest Service Customer Number



**Florida's Certified Pile Burner Training  
Wednesday, February 14, 2018**

**Location: Southwest Florida Research and Education Center  
2685 State Road 29 North, Immokalee, FL 34142  
(239) 658-3400**

**All Times Are Local**

|                                      |               |
|--------------------------------------|---------------|
| 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!**





## Location & Contact Information

**Location: Southwest Florida Research and Education Center  
(Immokalee IFAS Center)**

2685 State Road 29 North, Immokalee, FL 34142 (239) 658-3400

**Contact: Dr. Mongi Zekri, Multi-County Citrus Extension Agent  
Hendry County Extension Office, P.O. Box 68, LaBelle, FL 33975**

**Office Phone: 863 674 4092**

**Cell: 239 595 5494**



## 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.

# ALGAE



## Algae are in the plant kingdom, but maybe they're not really plants!

In Florida's freshwaters, algae are what make the water green, or even "slimy". However, green water is not necessarily undesirable, and neither are algae. In fact, algae are essential to the ecosystem and to life as we know it, and must be treated with respect.

**Algae are a diverse group of organisms,** which survive in all different types of habitats. They range in size from microscopic to meters in length and in complexity from single-celled to complex organisms that would rival even large plants. Though these organisms may look like the true, "higher", plants, they are anything but, since they do not have roots or true stems and leaves.

**Algae are one of the first steps of the food web.** There are microscopic algae, like phytoplankton, and there are macroalgae, algae that can be seen by the naked eye. Algae occur naturally in all types of systems and may be considered indicators of ecosystem condition. Even the mere presence of a species can give an indication of the amount and type of nutrients that run through the system. Algae provide food for all types of animals, including fish, insects, mollusks, zooplankton (microscopic animals), and humans.

## What causes an algae bloom?

**At times algae can grow so quickly and densely that they form a "bloom".** Many people don't like the "look" of a bloom, though blooms can be a natural occurrence. Blooms are not necessarily green, though that is the most common color. They can be blue-green, brown, red, and even violet.



Some blooms turn the water a certain color; this is usually a bloom associated with phytoplankton (microscopic algae). Other blooms form clumps or mats that float on top of the water, or that grow attached to the bottom or to plants. Still others can form dense mats that cover the water surface. Algae need nutrients, such as nitrogen and phosphorous, and light to grow. The level of growth or productivity is often dependent on the amount of nutrients in a system. There is a classification for productivity of a system; it ranges from oligotrophic (low productivity and nutrients) to hypereutrophic (very high nutrients). Also, since algae need light to photosynthesize, how far light penetrates the water is also another limiting factor.

Blooms can have far reaching effects on the environment. Some can become so dense they can ultimately cause a problem with [low oxygen](#) levels. A decrease in oxygen causes hypoxia (low oxygen) or anoxia (no oxygen) and the other organisms in the water that need oxygen to survive, such as fish, become stressed and may die. Other

blooms may release toxins that can be harmful to animals.

There is a general consensus that rapidly growing human development, and increased human use and disposal of nutrients over the past few centuries, has increased the frequency and intensity of algal blooms in many regions of the world. This has created a global effort to control harmful blooms.

## Controlling blooms

**The most direct way to control blooms** is to reduce the availability of nutrients. Most water management organizations throughout the world are actively pursuing a variety of nutrient control strategies. However, for some aquatic ecosystems nutrient control is impractical, ineffective or simply too costly. For some cases chemical or biological treatments can be helpful alternatives.

### Chemical Treatments

**Copper sulfate** (bluestone) and **chelated copper compounds** such as Cutrine-Plus, Algae Pro, and K-TEA, as well as Endothall are common chemical treatments used to kill algae. Chemical compounds that shade out the light for algae growth, e.g. Aquashade, are also used to control blooms. Each chemical has its own restrictions and toxicity to animals. Read the directions carefully before application.

### Biological Treatments

The main biological treatment that is employed today is the use of various carp fish species to control submersed and floating algae. **Grass carp** (*Ctenopharyngodon idella*) is mainly used for aquatic weeds and attached submersed algae, such as *Nitella* sp., and *Chara* sp. Where they do not prefer filamentous algae to eat, grass carp will eat *Lyngbya*. The **silver carp** (*Hypophthalmichthys molitrix*)

has been shown to be an effective treatment for controlling filamentous algae, including blue-green algae.

Both species are non-native species and there are many restrictions to employing them as a means of weed control; some states prohibit their use altogether. When they are allowed, the use is restricted to **triploid carp**. Triploid carp have an extra set of chromosomes that render the fish sterile, therefore prohibiting a population explosion if the fish escapes into an uncontrolled area.

### Physical Treatments

Physical treatments for algae in ponds include [aeration and airlifts](#). While aeration does not kill or remove algae from the water, it oxygenates and stirs the water column, and can create conditions to shift from toxic and smelly blue-green algae to preferred green algae species. The resultant algal population is usually not as dense or as toxic to other organisms in the ponds.

### Mechanical Treatments

Harvesters are sometimes used to skim dense mats of blue-green lyngbya alga from the surface of lakes and rivers. Lyngbya normally grows in dense mats at the bottoms of nutrient enriched lakes. These mats produce gasses during photosynthesis that often causes the mats to rise to the surface. At the surface, winds pile the algal mats against shorelines or in navigation channels; these mats can be several acres in size. Managers have developed a process called "grubbing" whereby harvesting machines lift the mats off of submersed plants such as native eelgrass, without cutting the eelgrass. By removing the blanket of lyngbya from the eelgrass, the plants grow and expand. Eelgrass is an important food source for manatees in the Crystal and Homossassa Rivers.



## WHERE FLORIDA'S WATER COMES FROM?

Please be active in conserving and protecting our waters

Average annual rainfall in Florida is 53 inches, making it one of the wettest states in the nation. The state's differing climate types yield much rainfall variability from region-to-region and from year-to-year. In central and South Florida, most of the rain falls during four summer months and much of the annual amount is "lost" to the natural hydrologic system through evaporation. The region is prone to wide weather extremes of flood and drought.

Nearly two-thirds of Florida's freshwater use is pumped from vast underground reservoirs called aquifers. Of Florida's groundwater sources, the deep Floridan Aquifer, which spans the majority of the state, supplies 62%; the shallower Biscayne Aquifer (underlying most of Miami-Dade and Broward and portions of Palm Beach and Monroe counties), provides 17%; the remaining 21% is supplied by surficial and intermediate unnamed aquifers. The state's remaining freshwater is supplied from surface waters, including lakes and rivers.

In South Florida, approximately 90% of the water used in homes and businesses comes from groundwater sources. The remaining 10% comes from surface waters. Both surface and groundwater supplies are highly dependent on rainfall for replenishment.



At the heart of the South Florida system sits Lake Okeechobee – the largest natural water body in the southeastern United States. It serves as a source of public water supply for the City of Okeechobee (16,000 utility customers) and provides a supplemental source of irrigation water to more than 700,000 acres in agricultural production. In addition, it serves as the backup water supply for more than five million residents. The massive lake also plays a critical environmental and economic role as a sport and commercial fishery, navigation/recreation waterway and natural habitat for fish, wading birds and other wildlife, including a variety of endangered and threatened species.

While heavy rainfall throughout South Florida benefits and recharges underground supplies, the ability to capture and store the rainwater for future use is extremely limited. When floods threaten – even during water shortage situations – the top priority is channeling the excess water away from homes and businesses as quickly as possible. To lower the levels in coastal canals and accommodate direct rainfall and stormwater runoff, freshwater must oftentimes be released to the ocean or gulf.

The demand for water by growing urban populations and agricultural operations in South Florida is expected to increase significantly in the coming decades. Meeting the growing need for water hinges on our efforts to develop region-specific sources that offer an alternative to traditional ground water and surface water. Alternative water sources are important to Florida's future. They also help to make communities less susceptible to the effects of drought.

Developing alternative water sources diversifies our supply while reducing our dependence on fresh water resources. Examples of Alternative Water Supply are:

- saltwater and brackish water
- water reuse
- surface water captured predominately during heavy rainfalls
- sources made available through the addition of new storage capacity
- stormwater (for use by a consumptive use permittee)
- any other source designated as nontraditional in a regional water supply plan

To address the challenge of ensuring the state's current and future water supply, the 2005 Florida Legislature enacted the Water Protection and Sustainability Program. This precedent-setting law encourages cooperation between municipalities, counties and the state's five water management districts to protect and develop water supplies in a sustainable manner. Water management districts are promoting and supporting local government alternative water supply projects that support smart growth and reduce the use of fresh ground and surface water supplies, such as aquifers and lakes for a sustainable future.

Water reuse plays an important role in water resource, wastewater and ecosystem management in Florida. When reclaimed water is used, it eases the demand on traditional, often limited, sources of water. By recycling or reusing water, communities can still grow while minimizing or even reducing their impact on the water resources around them.

Water reuse involves using highly treated domestic wastewater for a new purpose. Reclaimed water systems are continually monitored to ensure the health and welfare of the public and the environment are protected.

Using reclaimed water also reduces discharges to surface waters, recharges ground water and postpones costly capital investments in the development of new, more costly water sources and supplies. Reclaimed water is an excellent water source for:

- Irrigating golf courses, residences, highway and street medians and other landscaped areas
- Meeting urban demands for water to wash cars, flush toilets and maintain ponds and fountains
- Meeting industrial and commercial demands for water at power plants and for processing needs
- Irrigating food crops, such as citrus, and irrigating other crops and pastures for livestock
- Creating wetlands and enhancing restoration
- Recharging groundwater

# Flatwoods Citrus

If you did not receive the *Flatwoods Citrus* newsletter and would like to be on our mailing list, please check this box and complete the information requested below.

If you wish to be removed from our mailing list, please check this box and complete the information requested below.

Please send: Dr. Mongi Zekri  
Multi-County Citrus Agent  
Hendry County Extension Office  
P.O. Box 68  
LaBelle, FL 33975

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

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

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

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

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

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

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

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## *Racial-Ethnic Background*

\_\_ American Indian or native Alaskan

\_\_ Asian American

\_\_ Hispanic

\_\_ White, non-Hispanic

\_\_ Black, non-Hispanic

## *Gender*

\_\_ Female

\_\_ Male