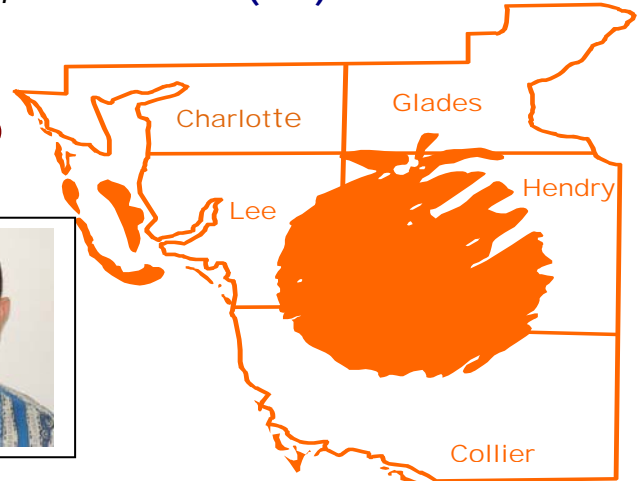


Hendry County Extension, P.O. Box 68, LaBelle, FL 33975 (863) 674 4092

# Flatwoods Citrus



**Vol. 17, No. 9**      **September 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

Citrus Grove Management in the Greening Era  
(Psyllid /HLB management for young trees, resets, mature blocks.  
Timing and frequencies for psyllid control, products, foliar, systemic, by  
air, by ground, nutritional therapy, soil amendment, thermotherapy,  
scouting, etc...)

Date & time: Wednesday, September 24, 2014, **10:00 AM – 12:00 Noon**

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

Program Coordinator: Mongi Zekri

Sponsor: Jerry Southwell, YARA



## Grower Speakers:

-*Maury Boyd*, Roots: different universes and other things

-*Tim Willis*, Citrus psyllid and HLB management

-*Tom Stopyra*, Citrus Grove Management in the Greening Era

-*Danny Sutton*, Citrus Grove Management in the Greening Era

-*Wes Mathis*, Citrus Grove Management in the Greening Era

**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 Jerry Southwell with YARA. 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)

## Citrus Field Day-Immokalee IFAS Center

Psyllid management, nutritionals for tree health, economics, citrus canker

Date & time: Thursday, October 30, 2014, **9:00 AM – 12:00 Noon**

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

Program Coordinators: Mongi Zekri and Julie Carson

Sponsor: Frank Miele, Magna-Bon

## Speakers:

-*Dr. Phil Stansly*

-*Dr. Bob Rouse*

-*Dr. Pam Roberts*

-*Dr. Fritz Roka*

**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 Frank Miele with Magna-Bon. 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)

## 2015 International Research Conference on Huanglongbing (HLB)

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

Early Registration by September 30, 2014

Visit the IRCHLB website for more information - [Click here for IRCHLB website](#)

### *Registration Information*

Early Registration: \$495 by September 30, 2014

Late Registration: \$595 after September 30, 2014

<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: 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 will be available in the next newsletter issue and online.





## Farm Labor Supervisor Training Program

### Fall 2014 Class Schedule

[www.imok.ufl.edu/programs/economics/fls.php](http://www.imok.ufl.edu/programs/economics/fls.php)

Date	Class	Location	Time	Registration Fee	Registration Eventbrite link
Sep 23	Advanced DOT Compliance	SWFREC 2685 SR 29 N Immokalee, FL (239)658-3462	8:30am-noon	\$25 (no lunch)	<a href="http://fls-dot-comp-immokalee.eventbrite.com/">http://fls-dot-comp-immokalee.eventbrite.com/</a>
Sep 24	DOT Regs – Driver & Vehicle	CREC 700 Experiment Station Rd Lake Alfred, FL (863)956-1151	8:30am-noon	\$25 (no lunch)	<a href="http://fls-dot-regs-lakealfred.eventbrite.com">http://fls-dot-regs-lakealfred.eventbrite.com</a>
Sep 30	1. Wage & Hour 2. EEOC Compliance 3. Communication	EREC 3200 E.Palm Beach Rd Belle Glade, FL (561)993-1500	8:30am – 3:00pm	\$75 (with lunch)	<a href="http://fls-wage-eec-belleglade.eventbrite.com">http://fls-wage-eec-belleglade.eventbrite.com</a>
Oct 7	Emergency Preparedness & Personal Safety	SWFREC 2685 SR 29 N Immokalee, FL (239)658-3462	8:30am – 10:30am	\$15 (no lunch)	<a href="http://fls-emerg-prep-immokalee.eventbrite.com">http://fls-emerg-prep-immokalee.eventbrite.com</a>
Oct 14	First Aid	SWFREC 2685 SR 29 N Immokalee, FL (239)658-3462	8:30am-noon	\$50 (no lunch)	<a href="http://fls-firstaid-immokalee.eventbrite.com">http://fls-firstaid-immokalee.eventbrite.com</a>
Oct 15	DOT Regs – Driver & Vehicle	SWFREC 2685 SR 29 N Immokalee, FL (239)658-3462	8:30am-noon	\$25 (no lunch)	<a href="http://fls-dot-regs-immokalee.eventbrite.com">http://fls-dot-regs-immokalee.eventbrite.com</a>
Oct 21	1. Wage & Hour 2. EEOC Compliance 3. Communication	Stuart Conference Center 1710 US Hwy 17 S Bartow, FL (863)519-8677	8:30am – 3:00pm	\$75 (with lunch)	<a href="http://fls-wage-eec-bartow.eventbrite.com">http://fls-wage-eec-bartow.eventbrite.com</a>

Oct 21	WPS Train-the-Trainer	SWFREC 2685 SR 29 N Immokalee, FL (239)658-3462	8:30am - noon	\$15 (with lunch)	<a href="http://fls-wps-train-immokalee.eventbrite.com">http://fls-wps-train-immokalee.eventbrite.com</a>
Oct 22	DOT Regs – Driver & Vehicle	Family Service Center 310 W.Whidden St Arcadia, FL (863)993-4846	8:30am- noon	\$25 (no lunch)	<a href="http://fls-dot-regs-arcadia.eventbrite.com">http://fls-dot-regs-arcadia.eventbrite.com</a>
Oct 28	CPR / AED	SWFREC 2685 SR 29 N Immokalee, FL (239)658-3462	8:30am- noon	\$30 (no lunch)	<a href="http://fls-cpr-aed-immokalee.eventbrite.com">http://fls-cpr-aed-immokalee.eventbrite.com</a>
Oct 29	1. Wage & Hour 2. EEOC Compliance 3. Communicati on	SWFREC 2685 SR 29 N Immokalee, FL (239)658-3462	8:30am – 3:00pm	\$75 (with lunch)	<a href="http://fls-wage-eeoc-immokalee.eventbrite.com">http://fls-wage-eeoc-immokalee.eventbrite.com</a>
Nov 4	Equipment and Field Safety	SWFREC 2685 SR 29 N Immokalee, FL (239)658-3462	8:30am – 10:30am	\$15 (no lunch)	<a href="http://fls-equip-safety-immokalee.eventbrite.com">http://fls-equip-safety-immokalee.eventbrite.com</a>
Nov 5	1. Wage & Hour 2. EEOC Compliance 3. Communicati on	Family Service Center 310 W.Whidden St Arcadia, FL (863)993-4846	8:30am – 3:00pm	\$75 (with lunch)	<a href="http://fls-wage-eeoc-arcadia.eventbrite.com">http://fls-wage-eeoc-arcadia.eventbrite.com</a>
Nov 18	Safe Driving Techniques	SWFREC 2685 SR 29 N Immokalee, FL (239)658-3462	8:30am – 10:30am	\$15 (no lunch)	<a href="http://fls-safe-driving-immokalee.eventbrite.com">http://fls-safe-driving-immokalee.eventbrite.com</a>

**Questions:**

Program content - Fritz Roka (239.658.3428, [fmroka@ufl.edu](mailto:fmroka@ufl.edu))  
Eventbrite registration- Julie Carson (239.658.3462, [carsonj@ufl.edu](mailto:carsonj@ufl.edu))  
Program content - Carlene Thissen (239.658.3449, [carlene@ufl.edu](mailto:carlene@ufl.edu))  
at the UF/IFAS Southwest REC, Immokalee, FL.

**Certified Crop Adviser**  
**Educational Seminar and CEU Session**

October 8, 2014  
7:30 AM to 6:30 PM

**Soil & Water Management (5 CEUs) and Crop Management (5 CEUs)**

On-site host: **UF/IFAS Citrus Research and Education Center in Lake Alfred**, and offered by videoconference at:

- Gulf Coast REC in Balm
- Southwest Florida REC in Immokalee
- Indian River REC in Ft. Pierce
- University of Florida main campus in Gainesville
- Lake County Extension Office in Tavares

Regular registration is \$100. Lunch will be provided at all sites.

Please send the attached registration form to the [Citrus Research and Education Center, Lake Alfred](#).

Visit the CCA Seminar website at [www.crec.ifas.ufl.edu/crec\\_websites/cca](http://www.crec.ifas.ufl.edu/crec_websites/cca) for the specific program as it becomes available.

[http://www.crec.ifas.ufl.edu/crec\\_websites/cca/PDF/Registration\\_Form\\_CCA\\_October\\_2014.pdf](http://www.crec.ifas.ufl.edu/crec_websites/cca/PDF/Registration_Form_CCA_October_2014.pdf)

## II. CONTACT INFORMATION (Please print or attach a business card)

To register, complete this form and mail with payment.

Name(s): \_\_\_\_\_

Affiliation: \_\_\_\_\_

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

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

Telephone: \_\_\_\_\_ FAX: \_\_\_\_\_

E-Mail: \_\_\_\_\_

Dietary restrictions or special accommodations: \_\_\_\_\_

## III. PAYMENT

**Registration:** Includes admission to the 1-day workshop, handouts, lunch, coffee breaks.

By mail (\$100)  $\$100.00 \times (\text{No.}) \text{ \_\_\_\_\_\_} = \$ \text{ \_\_\_\_\_\_}$  (Total) At the door (\$120)

Please make payment by check payable to CRE FOUNDATION, or CREF.

Cancellations: If your cancellation is received in writing by October 3, 2013, we will be happy to refund your registration fee less a \$25 administrative fee. Fees cannot be refunded for registrations cancelled after October 3, 2013. Thank you and we look forward to seeing you soon!

---

Mail this form and payment to: Citrus Research and Education Foundation  
Attn: Anne Burrage  
700 Experiment Station Road  
Lake Alfred, FL 33850-2299

---

For questions about the CCA Seminar Program, contact one of the Program Coordinators:

George Hochmuth UF/IFAS Soil & Water Science Department; Tel. (352) 294-3114; e-mail: [hoch@ufl.edu](mailto:hoch@ufl.edu)

Rao Mylavarapu, UF/IFAS Soil & Water Science Department; Tel. (352) 294-3113; e-mail: [rsom@ufl.edu](mailto:rsom@ufl.edu).

Yoana Newman, UF/IFAS Agronomy Department; Tel. (352) 294-1582; e-mail: [ynew@ufl.edu](mailto:ynew@ufl.edu).

For questions about registration, please contact Ms. Anne Burrage at the CREC; Tel. (863) 956-1151; e-mail: [amburr@ufl.edu](mailto:amburr@ufl.edu).

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**

7 August 2014

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

---

**Synopsis:** The chance of El Niño has decreased to about 65% during the Northern Hemisphere fall and early winter.

During July 2014, above-average sea surface temperatures (SST) continued in the far eastern equatorial Pacific, but near average SSTs prevailed in the central and east-central equatorial Pacific (Fig. 1). Most of the Niño indices decreased toward the end of the month with values of +0.3°C in Niño-4, -0.1°C in Niño-3.4, +0.2°C in Niño-3, and +0.6°C in Niño-1+2 (Fig. 2). Subsurface heat content anomalies (averaged between 180°-100°W) continued to decrease and are slightly below average (Fig. 3). The above-average subsurface temperatures that were observed near the surface during June (down to 100m depth) are now limited to a thin layer in the top 50m, underlain by mainly below-average temperatures (Fig. 4). The low-level winds over the tropical Pacific remained near average during July, but westerly wind anomalies appeared in the central and eastern part of the basin toward the end of the month. Upper-level winds remained generally near average and convection was enhanced mainly just north of the equator in the western Pacific (Fig. 5). The lack of a coherent atmospheric El Niño pattern, and a return to near-average SSTs in the central Pacific, indicate ENSO-neutral.

Over the last month, model forecasts have slightly delayed the El Niño onset, with most models now indicating the onset during July-September, with the event continuing into early 2015 (Fig. 6). A strong El Niño is not favored in any of the ensemble averages, and slightly more models call for a weak event rather than a moderate event. At this time, the consensus of forecasters expects El Niño to emerge during August-October and to peak at weak strength during the late fall and early winter (3-month values of the Niño-3.4 index between 0.5°C and 0.9°C). The chance of El Niño has decreased to about 65% during the Northern Hemisphere fall and early winter (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 September 2014. To receive an e-mail notification when the monthly ENSO Diagnostic Discussions are released, please send an e-mail message to: [ncep.list.ensu-update@noaa.gov](mailto:ncep.list.ensu-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 August 18, 2014

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

Much of South Florida experienced a typical wet season week with an average of about 1.5 inches of rain falling over the District during the past 7 days. Periods of heavy rainfall caused localized street flooding in some areas along the east coast. Overall, water levels continue to rise due to daily showers and thunderstorms.

Late August through October is generally characterized by highly variable rainfall mainly as a result of tropical activity and cold fronts.

Water Levels in Key Locations (August 18)		
Location	Today's level	Water Supply Floor
WCA-1	16.67 feet	14.00 feet
WCA-2A	12.88 feet	10.50 feet
WCA-3A	9.97 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](http://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](http://www.sfwmd.gov/ePermitting).
- For tips and information about water conservation, visit [www.savewaterfl.com](http://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](http://www.sfwmd.gov/opsreports).

Lake Okeechobee Levels	
Today (August 18)	14.49 feet
Historical Average for Today	14.02 feet
This Date One Year Ago	15.85 feet

# # #

Media inquiries can be directed to:

**Gabe Margasak**

South Florida Water Management District

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

## FERTILIZER FORMULATIONS AND APPLICATIONS

Fertilizers have many different formulations, analyses and grades available for purchase. Among the many choices, formulation-fluid or granular-is one of the most important. How do you decide which is the right product for your needs?

A fluid fertilizer is formulated and packaged as a liquid. This includes fertilizers that are clear liquids (solutions) or liquids that contain suspended solids (suspension fertilizers). Growers and production managers frequently use more solids (granules) than fluid fertilizers.

Solid fertilizers are dry particles that manufacturers size between an upper and lower limit of screen sizes. They may be finely crushed, granular, crystalline, powder or processed into uniform prills. These fertilizers by themselves usually are water-soluble for quick release but sometimes are coated as controlled-release products.



Water-soluble fertilizers are rapidly available for crops. Examples of common water-soluble products include urea, calcium nitrate, and potassium nitrate. Some water-soluble fertilizers are homogeneous products (every particle has the same composition). These homogeneous products have a uniform appearance and are made from blends of

raw fertilizer materials such as superphosphate, urea, and potassium chloride. Fertilizer bags always list which raw materials the manufacturer used in the fertilizer bag.

Other solid fertilizers are non-homogeneous blends (you can see the individual granules of different fertilizer materials), where the manufacturer simply has mixed particles together to produce a desired overall composition. Non-homogeneous products may not spread as uniformly as homogeneous products, especially if the particles are different in size and in weight.



Water-soluble fertilizers produce a rapid response, have a low cost per unit of nutrient, are easy to apply, and do not take expensive equipment or intensive training to ensure correct application.

Foliar feeding uses a small amount of fertilizer sprayed directly to the foliage, providing rapid uptake of nutrients and quick correction of a nutrient deficiency. Typically, applicators use foliar feeding to supply a small amount of a deficient nutrient or as part of a pesticide application. Sometimes, a nitrogen-phosphorous-potassium mix is used.

Benefits from using soluble solids as liquid fertilizers include the ability to apply nutrients through irrigation (fertigation), possible use as a carrier for post-emergence herbicides and flexibility of application as a foliar feed. Liquid application of a soluble-solid fertilizer through fertigation can reduce the risk of foliar burn, provide even coverage and allow simultaneous application of water

and fertilizers. Liquid fertilizers can be applied at low rates on a frequent basis to spoon-feed the crop, promoting consistent and uniform growth. Application of small amounts of fertilizer on a regular basis can increase fertilizer efficiency and reduce environmental risk. Disadvantages of liquid fertilizer may include the extra cost of new application equipment and the issues of handling a heavy, bulky, liquid material.



New technologies have led to the development of resin or polymer-coated fertilizers. Nutrient-release rates depend on factors such as moisture and temperature (depending on the product) and vary with the composition and the thickness of the coating. These fertilizers tend to be uniform in granule size and provide controlled release nutrients. They are an excellent choice in high-value crops or when frequent application of soluble N is not an easy and a cheap option.



On the positive side, use of controlled release fertilizers creates a long-term, consistent growth. Because of the low application frequency, labor cost

is low. These products also have a low burn potential. On the negative side, they do not tend to provide a rapid response, and their cost per unit of nutrient is much higher than that of soluble sources.



All fertilizers have both advantages and disadvantages. The appropriate type for each operation depends on several factors. Consider the following in making your choice of fluid or solid fertilizers. Do you have the labor and/or the equipment to make the frequent applications that soluble liquid or solid products require? Consider controlled release products for some blocks.

Do you need a quick fix of a visual manganese, zinc, boron, copper, or magnesium deficiency? Foliar liquid application may be the best solution. Controlled release fertilizers and properly timed, frequent applications of soluble fertilizer sources can help protect the water supplies and the environment, especially in areas prone to heavy rains near environmentally sensitive areas. Test your crop and soil to determine what nutrients you need to apply and which application methods you should use.



## 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 back up 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

## FALL NUTRITION OF CITRUS TREES

To increase fertilizer efficiency, soil and leaf analysis data should be studied and taken into consideration when generating a fertilizer program and selecting a fertilizer formulation. Dry fertilizer application should be split into 3 to 4 applications per year with a **complete balanced fertilizer**. Based on tree demands, 1/4 to 1/3 of the yearly fertilizer amount should be applied in the fall to satisfy vegetative growth demand. However, late heavy fall fertilizer applications may delay fruit color development and fruit maturity for early season tangerine cultivars.

### MAGNESIUM NUTRITION

In Florida, magnesium (Mg) deficiency is commonly referred to as “bronzing”.

Trees with inadequate Mg supply may have no symptoms in the spring growth flush, but leaf symptoms will develop as the leaves age and the fruit expand and mature in the summer and fall.

Magnesium deficiency symptoms occur on mature leaves following the removal of Mg to satisfy fruit requirements. During the summer, when a rapid increase in fruit size occurs, the symptoms appear on leaves close to the developing fruit.

Magnesium deficiency symptoms appear as a result of translocation of Mg from the leaves to the developing fruit, although there may also be a translocation from older leaves to young developing leaves on the same shoot.

Disconnected yellow areas or irregular yellow blotches start near the base along the midribs of mature leaves that are close to fruit. They become gradually larger and eventually coalesce to form a large area of yellow tissue on each side of the midrib. This yellow area enlarges until only the tip

and the base of the leaf are green, showing an inverted V-shaped area pointed on the midrib.



In acute deficiency, the yellow area may gradually enlarge until the entire leaf becomes yellow or bronze in color.



Leaves that have lost most of their green color due to Mg deficiency drop freely under unfavorable conditions. Defoliated twigs become weak and usually die by the following spring. Severe defoliation will reduce the average size of individual fruit and cause a general decline in fruit production. In Florida, Mg deficiency in citrus is caused primarily by low levels of Mg on acid light sandy soils and on calcareous soils. Leaching of added Mg is particularly serious and substantially rapid when the soil pH is 4.5 to 5.0. Under such conditions, the use of dolomite to bring the pH to 6.0 will furnish Mg at the same time.

## FIXING Mg DEFICIENCY

Soil application of Mg sulfate to provide 50-60 lbs of Mg per acre can be successful in correcting Mg deficiency when the soil pH is adjusted. Under calcareous soils, the amounts of Mg applied must be greater than those applied on soils low in calcium or potassium. Foliar spray applications of Mg nitrate (3-5 gallons/acre) can be effective when applied on the spring and summer flush

leaves when they are about fully expanded. Remember that Magnesium should be applied regularly at 1/5 (or 20%) of the N rate unless leaf analysis shows more than 0.50% Mg. If leaf Mg deficiency symptoms occur, Mg should be applied in the fertilizer, and the rate should be increased up to 30% of the N rate until symptoms are no longer present in mature leaves of subsequent flushes.

## FRUIT DROP

### Several of you asked about the use of ProGibb this season

#### **ProGibb**

Although positive results were not consistent, the recommended rate for ProGibb is 20 grams ai/acre. Application for Hamlin should be in mid- September and for Valencia in mid-October.

Use 125 gallon solution per acre.

The addition of an organo-silicone surfactant is recommended (at 0.05%) (6 fl.oz./100 gallons) such as Kinetic or Silwet.

Organo-silicone surfactants can result in very rapid uptake by carrying material through plant pores known as stomates. Surfactants can significantly enhance entry of PGRs into plant tissues.

Considerable uptake often occurs after spray has dried, therefore, rain within a few hours of application may significantly reduce PGR effectiveness. Many PGRs degrade rapidly in sunlight. Greater uptake at lower spray solution pH. Do not use in water above pH 8

**Read and follow the product label**

**For guidance and more accurate recommendations on the use of Plant Growth Regulators (PGRs), please contact Dr. Gene Albrigo at <[albrigo@ufl.edu](mailto:albrigo@ufl.edu)>**



**From The Citrus Industry magazine, 95 (9):**

## RESETTING IN CITRUS GROVES



*Mongi Zekri*

For maximum efficiency of a production unit or grove, it is essential that every tree space is occupied by a healthy and productive tree. The average annual tree loss across the Florida citrus industry is currently around 6%. However, the extent of tree loss among individual groves can vary from 2 to 12% or more. Prompt replacement of unproductive trees means higher average long-term returns from the grove. If the declining trees remain in the grove, they keep getting weaker and yield less fruit each year and therefore the potential production capacity for the grove keeps declining even though production costs remain the same or even increase. It is very important to remove and replace such trees once it is clear that they are declining and they are no longer economically profitable. However, the reason for the decline should be determined and the condition should be corrected so that the replacement tree does not suffer the same fate.

Resetting should be considered if the tree is affected by an incurable disease such as blight, tristeza, or citrus greening. The resetting program should be conducted regularly rather than being delayed until serious losses in production have occurred. Resets should be planted with the same cultivar already in the block. Usually, it is more economical to keep resetting and not to push the entire block unless the cultivar and/or the tree spacing between rows is an undesirable one. Replanting in a mature grove seems justified only when a minimum of 8 ft between canopy driplines, (not from trunk-to-trunk), is available for canopy development of the new trees.

Replacement of dead, diseased, and declining trees in Florida citrus groves should always be an important part of the total production program. Today, tree replacement is more important than ever since overhead and production costs are dramatically increasing and a full stand of productive trees is essential to maximize production and profits. Freezes, blight, tristeza, Phytophthora, Diaprepes, and other pests and diseases have been particularly troublesome to Florida citrus growers for the last two decades. Citrus canker and greening have been devastating citrus groves since their introduction to Florida. Extensive tree losses coupled with the economic necessity of regular resetting have caused many growers to investigate ways to achieve new efficiencies in reset management.

### NOT AN EASY TASK

Caring for young citrus trees is always troublesome because they require far more attention than larger, established trees. Florida's sandy soils, high summer temperatures, possible low winter temperatures, and scattered rainfall patterns complicate young tree care by forcing growers to protect, fertilize, and weed young trees regularly or face extensive losses. Young trees are more sensitive and more attractive to pests than mature trees due to high levels of vegetative growth. Therefore, special care is needed to insure pests are adequately controlled. Resets often present an even greater problem because

trees are usually scattered throughout a block of larger trees, where they compete with large, full-grown trees for limited supplies of water, nutrients, and sometimes sunlight. Scattered resets frequently have serious weed problems since removal of the previous tree allows the area to receive more sunlight and provides more favorable conditions for weed growth. Since resets are usually scattered throughout a block of much larger trees, they are often difficult to locate and may be accidentally overlooked, resulting in inadequate care. Researchers, growers, and production managers are continually developing and improving methods of dealing with reset care.

### PLANNING THE RESET PROGRAM

Grove managers should include tree removal and resetting as a routine part of the production program and assign special crews to deal specifically with young tree care. Planning ahead is very important because there is often a lag period between the time when replacement trees are ordered and when they are received. The wait time for the most desired rootstock and scion combination may be as great as 1 to 2 years, so replacement tree needs should be anticipated (when possible) and orders placed so they can be obtained when needed.

### PURCHASING TREES

High quality reset trees are essential for maximum young tree growth. These young trees will be placed in an intensely competitive situation and may sometimes receive less than ideal care, so there is no room for compromising tree quality. Only healthy and properly sized trees from registered sources should be purchased since the initial cost is only a small fraction of the total cost of bringing such a tree into production.

### SITE PREPARATION

The planting site should be well prepared. Weeds should be removed before planting. At a minimum, a non-residual herbicide should be applied to the reset area to get weeds under control before the young tree is planted.

Planting sites should be prepared well in advance of receipt of the trees. Ideally, trees should be planted on the same day they are received. Under no circumstances should trees be allowed to dry out. To minimize root desiccation and damage, they should be kept cool and moist until they are planted.

### PLANTING THE TREES

Trees should be removed from the container and inspected for evidence of pot-binding. Make several vertical slashes about one inch deep through the root ball to encourage root branching. These slashes also allow the potting soil and roots to interface more closely with the soil in the planting site. It may be easier to cut some of the roots with pruning shears and pull them so they protrude from the ball.

A common problem with nursery trees is that the potting mixture is often highly organic. Such materials form areas, which are difficult to permeate with water after the young tree is planted in sandy soils and irrigated. The outer third of the organic ball should be removed so that the outer roots are exposed and can extend into the soil in which the tree is planted. Otherwise, the tree may not grow off quickly and satisfactorily.

### WEED CONTROL

Keeping weeds under control during the establishment period of the reset is very important. Weeds compete with young citrus trees for water, nutrients, soil applied

pesticides, and sunlight and they must be properly controlled. Weed control around a reset site should be considered at pre-plant, early post-plant, and after the tree is established. Control of weeds prior to planting should be provided. If residual herbicides are used, they should be used at proper rates and at least 30 days in advance of planting so that residues do not impact reset growth. Prior to planting, contact or growth regulating herbicides may be preferred since they do not leave residual effects in the soil.

Weed control during the establishment period or approximately the first year is frequently quite difficult. Hand labor is scarce and expensive. Trunk damage by hoes or other cultivation equipment further compounds the problem. Chemical weed control provides at least a partial solution to the problem during this establishment period. There is now a fairly wide selection of residual herbicides available, which can be used around young trees. These materials should be applied at reduced rates. Be sure to read labels carefully for restrictions on the use of herbicidal materials around young trees.

After the reset has been planted for a year or more, modifications of the weed control program can be considered. Labels of materials under consideration should be checked carefully for restrictions prior to use. Some herbicides require reduced rates around young trees to minimize potential damage to resets planted among older trees. Specially modified herbicide applicators are available which enable the equipment operator to deliver reduced rates or a different herbicide mix around young trees.

To minimize herbicide contact to young trees, many growers apply a wrap or guard around the lower 12 to 16 inches of the tree trunk. When using these wraps be sure to monitor the protective structure for ants or other pests that may damage the tree trunk.

## SPROUTING

Resets require periodic sprout removal. The use of tree wraps usually reduces the need for sprout control. Wraps often stay in place for up to 3 years. They should, however, be checked periodically for the presence of ants or fungal diseases. Reduced sprouting may be enough to justify their use. There are no simple answers to the use of wraps. Each situation is different and requires careful horticultural and economic consideration to arrive at the best procedure of maintenance, inspection, and management.

## IRRIGATION & DRAINAGE

Young citrus trees require frequent but moderate water application for survival and proper growth. Competition for water is accentuated by nearby older trees or if weeds are allowed to grow close to the young trees. Anything that can be done to discourage competition for available water should be beneficial to the young tree. Irrigation systems should be in place before planting trees. Special modifications to the irrigation pattern by inverting the micro-sprinkler so that the surface wetting area is reduced or by increasing irrigation frequency can be good strategies to supply water for resets. However, the irrigation frequency necessary to sustain a mature grove is rarely adequate for good growth of newly-set trees, and young trees should be checked frequently to be certain they are receiving sufficient water. Drainage is as important as irrigation. Excess water must be removed from the rootzone. The concept of total water management must be practiced. If either system -irrigation or drainage- is not designed, operated, and maintained properly, then the maximum profit potential of a grove cannot be achieved. In Florida, both surface and subsoil drainage is necessary to obtain adequate root systems for the trees.

## FERTILIZATION

Reset fertilization requires an extra effort beyond the needs of the bearing grove. Frequent application of water-soluble fertilizers with irrigation water (fertigation) can increase overall fertilizer use efficiency. If the grove is under a fertigation program, there is no need for special care in terms of nutrition for resets. Great care must be taken to ensure that proper rates of fertilizer materials are dispensed to prevent nutritional deficiencies or toxicities. Frequent light applications usually produce best results and lessen the danger of leaching but these practices need to be evaluated for cost effectiveness. The use of controlled-release fertilizers for resets is a better option than making multiple trips throughout the year to scattered resets throughout large blocks.

## PEST CONTROL

Because young trees have more frequent flushing cycles than mature trees, they are more attractive and sensitive to pests. Therefore, special care is needed to keep the citrus psyllid and leafminer under control to reduce their damage to new leaves and to reduce the severity of citrus canker and the spread of citrus greening. Relying solely on foliar contact insecticides for resets is not a good strategy. Soil-applied systemic insecticides (neonicotinoids) which provide 6-8 weeks of control are the most effective tool for managing psyllids and leafminers on resets. Currently, three neonicotinoid products are registered for use in citrus: imidacloprid (Admire, Alias, Couraze, Nuprid), thiamethoxam (Platinum), and clothianidin (Belay). Various generic formulations are also available. Resets should also benefit from foliar contact pesticides and from foliar nutrition used on mature trees.

## GROVE PLAT

Since resets are usually scattered throughout a block of much larger trees, they are often difficult to locate and may be accidentally overlooked, resulting in inadequate care. An annually updated grove plat is probably the best method for assessing general grove condition and productivity. Plats can be prepared by hand or with the assistance of a computer. This can help determine the number of trees which will be needed and where they should be placed. Reset plats can be prepared to later help equipment operators locate newly-planted trees for periodic care.



Figure 1. Scattered resets in a citrus grove.

- Insecticides (neonicotinoids) which provide 6-8 weeks of psyllid control are the most effective tool for managing psyllids (and leafminer) on young trees.
- Currently three neonicotinoid products are registered for use in citrus: Admire Pro 4.6F (imidacloprid\*), Platinum 75 SG (thiamethoxam), and Belay Insecticide 2.13 SC (clothianidin\*\*)
- Although psyllids must first insert their mouthparts into the treated plant to contact the insecticide, the presence of these insecticides in the plant cause the psyllids to immediately quit feeding, thus reducing the chances of a tree becoming infected with HLB.

\*various generic formulations are also available

\*\* read and follow directions on Belay Insecticide Section 18 label.

RATE PER ACRE (single application) (Based on 140 trees/A)			
	New Reset (2-3' height)	1-2 yrs (3-5' height)	3-5+ yrs (5-9' height)
Admire Pro 4.6F	3.5 fl oz (0.025 fl oz/tree)	7 fl oz (0.05 fl oz/tree)	14 fl oz <sup>1</sup> (0.1 fl oz/tree)
Platinum 75 SG	1.835 oz (0.0131 oz/tree)	1.835 oz (0.0131 oz/tree)	3.67 oz (0.026 oz/tree)
Belay Insecticide 2.13 SC <sup>2</sup>	3.0 fl oz (0.02 fl oz/tree)	6.0 fl oz (0.04 fl oz/tree)	12.0 fl oz (0.08 fl oz/tree)

<sup>1</sup>As per Admire Pro 24c label (EPA SLN FL-120008)

<sup>2</sup>Applicator must have in possession the Belay Sec 18 label and crisis declaration letter from FDACS.

## SEASON-LONG ACP CONTROL ON YOUNG TREES

Tree size	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Reset (<3')	P		A	A		B	B		A	A		P
1-2 yr (3-5')	P		A	B		B	B		B	A		P
3-5 yr (5-9') <sup>1</sup> bearing				P		A	B		A	B		

A= Admire (imidacloprid); B=Belay (clothianidin); P=Platinum (thiamethoxam); timing of foliar applications with different modes of action to prevent pesticide resistance to neonics depicted by white boxes.

<sup>1</sup>EPA SLN No. FL-12008 now permits up to 2 applications of Admire Pro at a rate of 14 fl oz/A per 12 months for trees 5-9' in height; Belay section 18 label permits 2 applications at 12 fl oz/A per 12 months for trees 5-9' in height. Always read and follow label directions.



In order to provide the most protection possible, applications of soil-applied neonicotinoids should be made a minimum of every 6 weeks, thus requiring 8-9 applications per year to provide season-long protection. There are limits on the amount of each product (active ingredient) that can be applied per acre/per year. The following tables show the number of applications of each product that are possible at the recommended use rate for trees of a given size class (see table on front) based on tree planting density. As tree size and planting density increase, fewer soil-applications will be possible, further increasing the need for effective psyllid control in the areas surrounding young tree plantings.

<3' height	# of applications possible			
Trees/A	Admire Pro	Platinum	Belay	Total
140	8	2	8.57	18.57
170	6.5	1.6	7.1	15.2
217	5.1	1.3	5.5	11.9
290	3.8	0.96	4.1	8.86

3-5' height	# of applications possible			
Trees/A	Admire Pro	Platinum	Belay	Total
140	4	2	4.3	10.3
170	3.2	1.6	3.5	8.3
217	2.6	1.3	2.8	6.7
290	1.9	0.96	2.1	4.96

5-9' height	# of applications possible			
Trees/A	Admire Pro	Platinum	Belay	Total
140	2	1	2.1	5.1
170	1.65	0.8	1.76	4.21
217	1.3	0.6	1.4	3.3
290	0.96	0.5	1.03	2.49



Resets (<3')



1-2 yr (3-5')



3-5+ yr (5-9')

1. Michael E. Rogers, associate professor, Department of Entomology and Nematology, Citrus REC, Lake Alfred, Florida; Cooperative Extension Service, Institute of Food and Agricultural Sciences; University of Florida; Gainesville, FL 32611.

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# Citrus Health Management Areas (CHMAs)

<http://www.crec.ifas.ufl.edu/extension/chmas/index.shtml>



Creation of Citrus Health Management Areas (CHMAs) has been identified as a high priority for Florida citrus growers to slow the spread of citrus greening disease and preserve the current Florida commercial citrus acreage. The purpose of CHMAs is to encourage neighboring citrus growers to work together to combat citrus greening, particularly through the coordination of psyllid control efforts. The information found in the links below is provided to aid Florida citrus growers in establishing CHMAs in their areas.



## **CHMA Toolkit**

- **Developing a psyllid management plan**
- **Material selection and scheduling guides**
- **Quick reference guide to citrus insecticides and miticides**
- **Young Tree Care**
- **Coordinated Spray Plan Template**
- **Citrus Pest Fact Sheet**

## **Presentation on CHMAs**

- **Citrus Expo presentation given 8/18/10**
- **Florida Citrus Show presentation given 1/20/11**
- **CHMA update IRREC, Ft. Pierce 9/27/11**
- **Utilizing ACP Scouting Reports given 11/8/11**
- **Mapping of Citrus Health Management Areas 4/2/13**
- **Florida Citrus Mutual CHMA results 6/13/13**

Contact your citrus extension agent to get good quality laminated extension publications

# LOVEBUGS

**Dr. Norman C. Leppla**, professor, Entomology and Nematology Department, Institute of Food and Agricultural Sciences, University of Florida



Lovebugs characteristically appear in excessive abundance throughout Florida as male-female pairs for only a few weeks every April-May and August-September. Although they exist over the entire state during these months, they can reach outbreak levels in some areas and be absent in others. They are a nuisance pest, as opposed to destructive or dangerous, in areas where they accumulate in large numbers.

## Lovebug Description and Biology

An individual female deposits an average of 350 eggs under decaying vegetation in a grassy or weedy area with adequate moisture. The larvae feed on decomposing leaves and grass until they pupate. In nature, the adults live just long

enough to mate, feed, disperse and deposit a batch of eggs, about 3-4 days. Lovebugs do not fly during the night. After a pair disperses, the male dies and the female deposits as many as 600 eggs under decaying leaves or grass before also dying.

**Lovebugs are attracted to automobiles.** After mating, lovebugs disperse as coupled pairs, presumably flying in search of nectar on which to feed and suitable oviposition sites. Mated females are attracted to sandy sites with adequate moisture, dead leaves, grass clippings, cow manure, and other decomposing organic debris. Lovebugs are attracted to anethole, an essential oil found in plants that also attracts bees. Additionally, female lovebugs are attracted to UV irradiated aldehydes, a major component of automobile exhaust fumes. They may confuse these chemicals with the odors emitted from decaying organic matter at typical oviposition sites. Heat has also been shown to attract lovebugs and contribute to their abundance on highways. Additionally, lovebugs seem to collect on light-colored buildings, especially when freshly painted. Many kinds of flies are attracted to light-colored and shiny surfaces, although the physiological or behavioral mechanisms are unknown. Thus, lovebugs apparently accumulate in relatively warm, humid, sunny areas with food and chemicals in the atmosphere that mimic oviposition sites.



**The body fluids of lovebugs are acidic and immediately dissolve automobile paint.**

When numerous lovebugs are smashed on the front of a vehicle, the contents of their bodies, especially eggs, coat the painted surface. No permanent damage is caused, however, if the surface is cleaned before the coating is baked by the sun for a day or two. Macerated lovebugs are about neutral with a pH of 6.5 but become acidic at 4.25 within 24 hours. Yet, automobile paint was not damaged after being coated with macerated lovebugs and held in a humid indoor environment for 21 days. A lovebug-coated surface exposed to the sun for an extended period of time, however, may be damaged by the insects and their removal. The front of a vehicle can be protected by coating it with “car wax” and removing the lovebugs within 24 hours.

**Lovebugs have no significant natural enemies.** No parasites have emerged from lovebug larvae or adults held in the laboratory, and few cases of predation have been observed in nature over the years. Apparently lovebugs adults are avoided by red imported fire ants and other predators but one periodically eaten by spiders, dragonflies, and birds. They have aposematic coloration that implies defensive mimicry but have not been chemically analyzed or tested as food for predators. Bee keepers report anecdotally that honeybees do not visit flowers infested with lovebugs. Fungal pathogens have been identified by screening, six from larvae and one from adults that could be limiting lovebug populations. These fungi include the well-known insect pathogenic genera, *Metarhizium*, *Beauveria* and *Conidiobolus*. Although not yet studied, lovebug eggs may be subjected to predation or parasitism.

**Lovebugs and People**

It is possible but usually not necessary to avoid lovebugs and the problems they cause. Unlike some of their close relatives, lovebugs do not bite, sting, or transmit diseases and are not poisonous. Lovebugs are only active in the daylight and are much less mobile during the early and late daytime hours. Typically, the pairs fly across the wind during their dispersal flights and are blown against obstacles, especially vehicles traveling at high speeds. Their remains can be removed from surfaces easily if not left to bake in the sun. Lovebugs are poor fliers that can be kept out of a building by creating positive pressure with an air-conditioning fan. If a few lovebugs enter, a vacuum cleaner can be used to remove them. Screens can be added to windows and doors, particularly on the prevailing windward side of a building, and placed over decks and swimming pools. A fan can be used outside near work or recreational areas to keep lovebugs away. Due to their abundance and mobility, lovebugs cannot be controlled effectively with poisons or repellents. Some people consider the lovebug to be among the peskiest alien invasive species to become established in the Gulf States. On the contrary, these potentially annoying flies are actually beneficial as larvae because they help to decompose dead plant material. People would also appreciate esthetic aspects of the adults, if these insects were not such a nuisance. Like cute little migratory birds, lovebugs signal changes in the seasons from spring to summer and again from summer to fall.

# 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  
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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