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Flatwoods Citrus



Vol. 13, No. 11 **November 2010**

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://irrec.ifas.ufl.edu/flcitrus/>

<http://citrusagents.ifas.ufl.edu/agents/zekri/index.htm>

IMPORTANT EVENTS & NEWS

First jointly-sponsored Citrus/AG Labor Compliance Seminar

Date: Tuesday, November 9th, 2010

Time: 9:00 AM

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

Please RSVP to Julie Carson at (239) 658-3462 before Friday, November 5th

LUNCH WILL BE SERVED AFTER THE SEMINAR!

Lunch is being provided courtesy of Everglades Harvesting & Hauling, Inc.

2010 Florida Ag Expo

November 10, 2010 in Balm, Florida

For more information and registration,

go to: www.FloridaAgExpo.com

Complimentary lunch ticket IF registered by

November 3, 2010



THE CITRUS BLACK SPOT WEBPAGE is available on the CREC website (www.crec.ifas.ufl.edu). It is located underneath the extension section or you may visit it directly at: http://www.crec.ifas.ufl.edu/extension/black_spot/citrus_black_spot.htm

Get Familiar with the

CITRUS HEALTH MANAGEMENT AREAS (CHMA's)

It is now online: <http://www.crec.ifas.ufl.edu/extension/chmas/index.htm>

See page 7 for more details

International Research Conference on Huanglongbing (HLB)

January 10-14, 2011, Orlando

Registration started on Sept. 1, 2010; Registration fee: \$350.

Registration/Abstract Submission: www.irchlb.org

You may be interested in attending/recommending/ insisting that your contractors attend this UF/IFAS farm labor contractor training to ensure they are in compliance with relevant regulations and help you avoid negative publicity.

The training will provide knowledge and understanding of legal compliance issues in four areas:

- November 3, 7:30 – 12:00 Administration**
- November 3, 12:30 – 5:00 Transporting Workers**
- November 4, 7:30 – 12:00 Worker Safety**
- November 4, 12:30 – 5:00 Personnel Management**

For more details or questions, please contact:

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Project Coordinator, Farm Labor Contractor Training
Southwest Florida Research & Education Center
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Syngenta Crop Protection is initiating their recruiting activities for the 2011 internship program. There will be a total of 7 positions located throughout the state's major citrus producing areas. The internship will run from May 16, 2011 through August 19, 2011. This is an excellent opportunity for college level students interested in pursuing a professional career in agriculture. For more details or to apply please contact John Taylor, Technical Support Representative, Syngenta Crop Protection at 561-694-8671 or by email john.taylor@syngenta.com Resumes and applications will be accepted through January 2011.

A field day to see up close the latest mechanization technology in the area of autonomous tractors, yield prediction, VRT spraying, and disease detection. More information about this project and field day can be found at:

<http://www.rec.ri.cmu.edu/usda/>
<http://www.rec.ri.cmu.edu/usda/extension/index.html>

The field day is scheduled from 8:00 -1:00 a.m. on **Tuesday Nov. 16th** at the Southern Gardens Devils Garden Groves in Clewiston, FL. Please RSVP by Nov. 9th if you plan to attend.

Register using one of the following methods:

E-mail Sherrie Buchanon at buchanon@ufl.edu or call her at (863)956-1151 ext. 1290. For questions, please contact: Sherrie Buchanon or Dr. Reza Ehsani buchanon@ufl.edu or ehsani@ufl.edu



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Susan Wright



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FOR IMMEDIATE RELEASE

MOVENTO® AND ULTOR® INSECTICIDES APPROVED BY JAPAN FOR USE ON U.S. CROPS EXPORTED TO JAPAN

Following Extensive Safety Review, Japan Joins Long List of Countries and Regions with Established Import Tolerances for Key Insecticides

RESEARCH TRIANGLE PARK, NC (October 21, 2010) – Bayer CropScience announced today that import tolerances (Maximum Residue Levels or MRLs) for its Movento® and Ultor® insecticides have been established on certain commodities intended for export to Japan, effective immediately. The recent announcement by Japan’s Ministry of Health Labor and Welfare establishes MRLs for spirotetramat, the active ingredient in the Movento and Ultor brand insecticides. The regulatory approval and establishment of MRLs followed a comprehensive safety review by Japanese regulatory officials.

“We are thrilled that Japan has established the MRLs for commodities treated with Movento and Ultor,” said Kevin Adam, product manager for Bayer CropScience. “Japan was the last major export market to give their go-ahead. This is tremendous news for growers of grapes, citrus and other label-approved crops who want to incorporate Movento and Ultor treatments into their integrated pest management programs on their crops bound for Japan.”

Movento and Ultor had already earned regulatory approval from the United States, European Union, Codex, Canada and Mexico with the establishment of MRLs by regional and national authorities there. A comprehensive list of established Maximum Residue Levels (MRL) can be found online at: <http://www.mrldatabase.com/>.

On October 15, 2010, Movento and Ultor received registration from the U.S. Environmental Protection Agency (EPA) for a second time, giving U.S. growers back a sorely missed tool for the management of their toughest pests.

Press Release

October 21, 2010

Bayer CropScience
2 T.W. Alexander Drive
Research Triangle Park
NC 27709
Tel. 919-549-2000



Citrus Health Management Areas (CHMA's)

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

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 overview

[CHMA toolkit](#)

[Contact information](#)

[Active CHMA Websites](#)

CHMAs Overview

[What is a CHMA?](#)

[Why create a CHMA?](#)

[How do CHMAs function?](#)

[How do I establish a CHMA in my area?](#)

Contact Information

To request assistance in establishing a CHMA in your area, please contact your local citrus Extension agent

<http://citrusagents.ifas.ufl.edu/locate/>

Any additional questions can also be addressed to **Michael E. Rogers**, Associate Professor of Entomology, Citrus Research & Education Center; email: **mrgers@ufl.edu**

Active CHMA Websites

Charlotte, Glades, Hendry counties [Gulf CHMA](#)

DeSoto County [NE Desoto CHMA](#)

Highlands County [Central Highlands 17/27 CHMA](#)

Gulf Citrus Growers Association Manager's Memo

REGIONAL CITRUS PSYLLID SUPPRESSION PLAN



As you are keenly aware, the Citrus Greening (HLB) disease is one of the most serious citrus diseases in the world. In Florida, our citrus industry is united in its efforts to battle this disease to survive! The industry's recent commitment to the unprecedented multi-million dollar investments into production research stands as testimony to the extent of our fight. It is hoped that the research investment will pay great dividends very soon, and that growers will have more "tools" to deal with HLB!

During the past 2 years, UF/IFAS scientists, including Drs. Phil Stansly, Alejandro Arevalo, Mongi Zekri and others in the "GULF" region... have concluded that "THE" most effective tactic that growers can "immediately" employ in their groves is a targeted dormant spray program to reduce the population of the citrus psyllids, which are vectoring "greening"! In addition, these scientists recently documented the results of our region's spraying initiative from the last 2 seasons and are promoting TWO sprays for the 2010-2011 season during the coming "dormant period"! We are targeting the (November--December and January--February) periods. This is the time when the psyllid populations are in decline here in the "GULF" region, and "the science" indicates that this timeframe would be the most effective time to conduct our comprehensive, coordinated psyllid suppression plan using aerial and ground spraying of selected chemical insecticides.

In this regard, the Gulf Citrus Growers Association, UF/IFAS' Southwest Florida Research and Education Center and the Florida Department of Agriculture & Consumers Services' Division of Plant Industry are initiating "ROUND THREE" of our "regional" psyllid suppression plan featuring coordinated aerial and comprehensive ground spraying throughout the five county "Gulf" area. Meetings have been held through GCGA's Production & Research Committee to put this plan together. This MEMO is your "INVITATION" to join our fight against the psyllid! PLEASE review our "Gulf" Citrus Psyllid Suppression Plan.

2010-2011

REGIONAL CITRUS PSYLLID SUPPRESSION PLAN/GULF CHMA

Based upon the best available science, the psyllid suppression plan will begin in the “Gulf” citrus production region in early November. The plan will feature cooperative aerial and/or ground applications of selected insecticides. This season’s plan again suggests TWO application periods: NOVEMBER-DECEMBER AND JANUARY-FEBRUARY!

These recommendations are based on the scientific evaluation of the last two season efforts!

The “Gulf” citrus production region has been sub-divided into Sub-Regions. Each Sub-Region will be coordinated by volunteer “Team Captain(s)”, who will follow-up with citrus growers within their Sub-Region to implement the plan. The “Sub-Regions”, and respective “Team Captains” AND their CONTACT INFORMATION are as follows:

EASTERN HENDRY SUB-REGION: Jim Snively (863) 228-0002
Joe Hilliard, II (863) 673-2043
Danny Sutton (863) 675-2966

GLADES CO.--ORTONA SUB-REGION: Kevin Rayburn (863) 673-8900

CENTRAL HENDRY SUB-REGION: Mark Colbert (863) 673-0262
Jim Cloughley (772) 473-9370
Wes Mathis (863)-673-2892

FELDA/CORKSCREW SUB-REGION: Dr. Mongi Zekri (863) 674-4092
Bryan Beer (863) 675 1663

N. & S. SR 82/SR 29 SUB-REGION: Tom Kirschner (239) 340-4729

SOUTH IMMOKALEE SUB-REGION: Paul Meador (863) 675-8500

CHARLOTTE COUNTY SUB-REGION: Fred Walters (941) 628-9310

AERIAL APPLICATORS will also serve as “key contacts” throughout the plan’s implementation. They will be making contacts on their current “grower customers”, as well as on growers within the “Sub-Regions” based on efficient aerial “logistics”.

Our AERIAL APPLICATORS are: Steve Fletcher, Fletcher Flying Service (239) 860-2028 and Jeff Summersill TRS AG Services (561-722-4502).

“Pre” and “Post” testing for Psyllids will be coordinated through UF/IFAS’/ SWFREC scientists and FDACS/DPI staff as to measure our program’s effectiveness. Their phone numbers are: Dr. Phil Stansly (239) 464-7395 and Paul Mears (239) 707-6084. Please Call Paul Mears to set a psyllid scouting appointment before you spray. PLEASE CONTACT THE TEAM CAPTAIN NEAREST YOUR GROVE, YOUR AERIAL APPLICATOR AND/OR THE “GCGA” OFFICE TO PARTICIPATE IN OUR EFFORTS!

YOUR SUPPORT AND PARTICIPATION WILL MAKE OUR EFFORT A SUCCESS!

"Gulf Citrus" Launches "Round #3" in Psyllid/HLB Fight



With two consecutive seasons of successful, cooperative “area-wide” spraying to reduce Asian citrus psyllid populations in the region as its benchmark, the Gulf Citrus Growers Association’s “Psyllid Suppression Team” is launching what is being called “Round 3#”.

“The goal is to unify citrus growers in the region to form a united front for managing the Asian citrus psyllid, vector of Huanglongbing (HLB) or ‘greening’,” says Dr. Phil Stansly, UF/IFAS entomologist, who is based at the Southwest Florida Research and Education Center (SWFREC) in Immokalee.

“This coming season, we are recommending two dormant sprays, the first between fall flush and Christmas, and the second one in January or the first week of February,” said Dr. Stansly. “This strategy will take out most overwintering psyllids before they have time to spread HLB and clean up the remnants in the winter, leaving enough time before spring flush to provide a good kill. We have seen that this second dormant spray is the most effective treatment of all...and one that should never be skipped,” he added. “Post bloom, we will work with growers to help evaluate Asian psyllid populations and determine whether there is a need for an area wide application prior to the onset of summer rains.”

The collaborative effort’s “team” includes GCGA, the Citrus Health Response Program (CHRP) of FDACS-DPI, the UF/IFAS Hendry County Extension Service’s Multi-County Citrus Agent, UF/IFAS’ SWFREC scientists and the aerial applicators.

Each “team” member has a specific role in the initiative. The GCGA, with its grower leaders, serves as the “organizer” and “promoter”. The FDACS-DPI’s personnel monitor psyllid populations before and after treatment periods. The UF/IFAS scientists help coordinate both the monitoring and implementation of the spraying. And, the aerial applicators work with the “grower ‘team captains’ to schedule applications in the sub-sections of the region. “This ‘team’ effort has truly produced positive results here in the ‘Gulf’ region,” said Ron Hamel, GCGA’s executive vice president. “It is a real tribute to all our leaders and participants alike that we are achieving success in reducing psyllid populations in our region. It is amazing what can be achieved when growers work together,” he added.

“The National Academy of Sciences, the best brain trust in the scientific world, has concluded that coordinated, regional pest control is ‘the single most important tool immediately available’ in our fight against ‘greening’. It is hard for me to accept anything less than eager, wholesale ‘buy-in’ from all citrus growers, regardless of their location,” said Mark Colbert, chairman of GCGA’s Production and Research Committee, which is directing the association’s “team” efforts.

Wayne Simmons, GCGA vice president and a member of the Citrus Research and Development Foundation’s (CRDF) board of directors, added, “We are a long way from winning the war, but at least we have started to win some of the battles. Growers have finally received some ‘good news’ and ‘good results’ in the fight against ‘greening’”.

The CRDF has organized a subcommittee to promote the establishment of Citrus Health Management Areas (CHMAs) throughout the state, which will be structured similar to GCGA’s voluntary initiative. Simmons is also a member of that CRDF subcommittee.

The GCGA program has been recognized as being “the first” organized “CHMA” in Florida, focused on attacking the psyllid, vector of the HLB disease.

Dr. Stansly recently reported that over 108,000 acres of citrus groves participated in the 2009-2010 area-wide spraying initiative in the “Gulf” region last season. Of that acreage, 73,180 were sprayed aerially and 35,000 by ground application.

“There is no doubt that cooperative dormant sprays have been a success in Southwest Florida, and should be implemented in citrus statewide,” said Dr. Stansly.

However, he warned against spraying too often. “Spraying throughout the year would not be a sustainable solution to the psyllid problem for various reasons including: 1) psyllid nymphs and eggs are hard to control in your flush; 2) loss of beneficial insects and mites would likely result in outbreaks of secondary pests such as leafminers, scales and mites and 3) the cost of year round calendar sprays would be excessive.”

This year, Dr. Stansly and the GCGA “team” hope to improve their successful psyllid suppression plan. “We hope to organize an area-wide scouting initiative with the objective of tracking psyllid populations throughout the region, pinpointing problem areas, and then assisting growers in making informed decisions on a block by block basis during the growing season,” explained Stansly. “We are also investigating the feasibility of area-wide mass release of the parasitic wasp, *Tamarixia radiata* to enhance biological control of the pest.

For additional information and details regarding the cooperative area-wide dormant spray program please contact the following: Dr. Phil Stansly (239) 658-3400 pstansly@ufl.edu , Dr. Mongi Zekri (863) 674-4092 maz@ufl.edu or Ron Hamel (863) 675-2180 gulfcitruscapron@embarqmail.com

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 ammonium nitrate (33-0-0) and urea (46-0-0). 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.

IRRIGATION, NUTRITION AND FRUIT QUALITY

Florida has the highest citrus fruit quality standards in the world. Fruit quality factors include juice content, soluble solids and acid concentrations, soluble solids-acid ratio, fruit size, and color. Florida citrus growers know that quality factors differ for the fresh and processing markets. For example, fruit size, shape, color, and maturity date are most important for fresh fruit, but high juice content and soluble solids are desired for processing fruit. Fruit quality is affected by several factors including cultivar, rootstock, climate, soil, pests, irrigation, and nutrition.



The effects of irrigation and nutrition on fruit quality are very important and should be understood and taken into consideration by citrus growers and production managers to increase their profitability and enhance their sustainability and competitiveness on a worldwide basis. In general, excessive irrigation and nutrition reduce fruit quality. Therefore, balanced nutrition with sound irrigation scheduling based on **IFAS** recommendations should be a high priority management practice for every grower. Citrus trees require a properly designed, operated, and maintained water management system and a balanced nutrition program formulated to provide

specific needs for maintenance and for expected yield and fruit quality performance. Irrigation contributes to the efficiency of fertilizer programs. Adequately watered and nourished trees grow stronger, have better tolerance to pests and stresses, yield more consistently, and produce good quality fruit. On the other hand, excessive or deficient levels of watering or fertilization will result in poor fruit quality. The most important management practices influencing fruit quality are irrigation and nitrogen, phosphorus, potassium, and magnesium nutrition. However, when any nutrient element is severely deficient, fruit yield and fruit quality will be negatively altered. Trends in fruit quality response to high nutrition and irrigation are described and summarized below.

Nitrogen (N)

- ❑ Increases juice content and color, total soluble solids (TSS), and acid content.
- ❑ Increases soluble solids per box and per acre. However, excessive N, particularly with inadequate irrigation, can result in lower yields with lower TSS per acre.
- ❑ Decreases fruit size and weight.
- ❑ Increases peel thickness and green fruit at harvest.
- ❑ Increases incidence of creasing and scab but decreases incidence of peel blemishes such as wind scar, mite russeting, and rind plugging.
- ❑ Reduces stem-end rot incidence and green mold of fruit in storage.

Phosphorus (P)

- ❑ Reduces acid content, which increases soluble solids-acid ratio. Phosphorus rates have no effect on soluble solids per box but may increase soluble solids per acre due to increase in fruit production in soils that are low in P.

- Increases number of green fruit but
- Increases expression of wind scar but reduces that of russeted fruit.

Potassium (K)

- Potassium produces mostly negative effects on juice quality except soluble solids per acre. Potassium increases fruit production therefore producing more soluble solids per acre.
- Decreases juice content, soluble solids, ratio, and juice color.
- Increases acid content.
- Increases fruit size, weight, green fruit and peel thickness.
- Reduces incidence of creasing and fruit plugging. In storage, reduces stem-end rot.

Magnesium (Mg)

- Slightly increases soluble solids, soluble solids-acid ratio, soluble solids per box and soluble solids per acre.
- Slightly increases fruit size and weight but decreases rind thickness.

reduces peel thickness.

Irrigation

- Increases juice content and soluble solids-acid ratio.
- Reduces soluble solids and acid contents. Soluble solids per box will decrease, but soluble solids per acre may increase due to yield increase.
- Increases fruit size and weight, increases green fruit at harvest, but decreases rind thickness.

Specific effects on juice and external fruit qualities are summarized in the Table below. This summary is based on numerous field experiments conducted over many years, mostly on responses of oranges to irrigation and fertilizer practices. Most of these effects were consistently observed, but some of them appear to depend on local conditions and growing regions. These observations are useful in developing a strategy to improve fruit quality for a particular variety or location.

EFFECTS OF MINERAL NUTRITION AND IRRIGATION ON FRUIT QUALITY

Variable	N	P	K	Mg	Irrigation
<u>Juice Quality</u>					
juice content	+	0	-	0	+
soluble solids (SS)	+	0	-	+	-
acid (A)	+	-	+	0	-
SS/A ratio	-	+	-	+	+
juice color	+	0	-	?	0
solids/box	+	0	-	+	-
solids/acre	+	+	+	+	+
<u>External Fruit Quality</u>					
size	-	0	+	+	+
weight	-	0	+	+	+
green fruit	+	+	+	0	+
peel thickness	+	-	+	-	-

Increase (+), Decrease (-), No change (0), No information (?).

SOIL ACIDITY AND LIMING

The optimum soil pH range for citrus trees is 6.0 to 7.0. Trifoliolate hybrid rootstocks such as citrumelos and citranges do better at the low end of this pH range. For sandy soils, one ton of liming material such as dolomite will raise the soil pH by about one unit. Liming acidic soils is economically sound and essential for profitable crop production. Soil pH must be monitored every year through soil testing because development of soil acidity is a continuous process that requires repeated applications of liming materials. Always test your soil before liming. Do not assume that lime is needed.



Problems in very acid soils

- *Aluminum (Al) toxicity to plant roots
- *Copper toxicity in soils that have received repeated Cu fungicide applications
- *Manganese toxicity to plants in continuously wet soils
- *Calcium & magnesium deficiencies
- *Molybdenum deficiency
- *Phosphorus tied up by iron (Fe) & Al
- *Poor bacterial growth
- *Reduced conversion of ammonium to nitrate

Problems in alkaline (high pH) soils

- *Iron deficiency
- *Manganese deficiency
- *Zinc deficiency
- *Excess salts (in some soils)
- *Phosphorus tied up by calcium (Ca) and magnesium (Mg)
- *Bacterial diseases and disorders

Fertilizers. Both organic and non-organic fertilizers may eventually make the soil more acid. For example, transformations of ammonium- (NH_4^+) and urea-based fertilizers into nitrate (NO_3^-) release H^+ that increases soil acidity. Therefore, fertilization with materials containing ammonium or even adding large quantities of organic matter to a soil will ultimately increase the soil acidity and lower the pH.

Raising soil pH (liming acid soils).

Soils are limed to reduce the harmful effects of low pH and to add calcium and magnesium to the soil. Lime reduces soil acidity (increases pH) by reducing the H^+ concentration through neutralization with carbonate (CO_3^{2-}) or hydroxide (OH^-). A Ca^{++} ion from the lime replaces two H^+ ions on the cation exchange complex. The hydrogen ions (H^+) are then reduced and changed into water (H_2O). An acid soil can become more acid as basic cations such as Ca^{2+} , Mg^{2+} , and K^+ are removed, usually by crop uptake or leaching, and replaced by H^+ .

Benefits of liming to correct soil acidity

- *Increased nutrient availability
- *Improved fertilizer use efficiency
- *Increased soil microbial activity
- *Higher nitrogen fixation by legumes

- *Reduced toxicity of copper
- *Provision of additional amounts of calcium and magnesium
- *Improved soil physical conditions
- *Increased cation exchange capacity
- *Improved herbicide activity
- *Increased growth and crop yield

Lime placement. Since ground limestone is relatively insoluble in water, maximum contact with the soil is necessary to neutralize the soil acidity. Lime will not quickly move into the soil like water-soluble fertilizers. Even though it is usually recommended to thoroughly mix lime with the topsoil, it is not practical to incorporate it in a citrus grove. Therefore, it will take lime longer to raise soil pH in a grove compared with a field where it is incorporated. As soon as moisture is present, the lime will begin to react. Coarse lime particles react more slowly than very fine particles. Therefore, using very finely ground limestone is necessary to

achieve the desired soil pH change within 4 to 6 months after application.

Overliming. While a correct liming program is beneficial for plant growth, excessive liming can be detrimental because deficiencies and imbalances of certain plant nutrients may result. The practice of estimating lime requirement without a soil test is risky because it can lead to overliming.

Liming materials. The most common liming materials are calcitic or dolomitic agricultural limestone. Calcitic limestone is mostly calcium carbonate (CaCO₃). Dolomitic limestone is made from rocks containing a mixture of calcium and magnesium carbonates. Dolomitic limestone also provides magnesium. Not all materials containing calcium and magnesium are capable of reducing soil acidity. Gypsum (CaSO₄) does not reduce soil acidity. Lime may be applied at any time during the year to Florida citrus groves.

Calcium sources

Source	Chemical formula	Calcium carbonate equiv. (pure form)
Burned lime (Quicklime)	CaO	179
Hydrated lime (Builder's lime)	Ca(OH) ₂	135
Dolomitic lime	CaCO ₃ • MgCO ₃	109
Calcitic lime	CaCO ₃	100
Basic slag (by-product)	CaSiO ₃	80
Marl (soft carbonates)	CaCO ₃	70 to 90
Gypsum	CaSO ₄	0
Calcium nitrate	Ca(NO ₃) ₂	20
Ordinary superphosphate	Ca(H ₂ PO ₄) ₂ + CaSO ₄	0
Concentrated superphosphate	Ca(H ₂ PO ₄) ₂	0

Quick Overview of the Federal Worker Protection Standard (WPS)



Key Definitions Relating to WPS

Agricultural establishment --- any farm, forest nursery or greenhouse.

Agricultural employer --- any person who hires or contracts for services of workers/handlers, for any type of compensation, to perform activities related to the production of agricultural plants, or any person who is an owner or responsible for the management or condition of an agricultural establishment that uses workers/handlers.

Agricultural plant --- any plant grown or maintained for commercial or research purposes and includes, but is not limited to, food, feed, and fiber plants; trees; turfgrass; flowers; shrubs; ornamentals; and seedlings.

Handler --- any person, including a self employed person, who mixes, loads, transfers, applies, disposes pesticides or pesticide containers, cleans, adjusts, handles or repairs application equipment, acts as a flagger, etc.

Restricted entry interval (REI)--- the time after the completion of a pesticide application during which entry into the treated area is restricted.

Worker --- any person, including a self employed individual, who performs hand labor tasks, including weeding, harvesting, topping, sucker removal, packing produce in the field, thinning, etc.

What Employers Must Do for Both Workers and Handlers

Information at a central location

Information must be made available to workers and handlers at a central location where it can be easily accessed during normal business hours and must include the following information:

- EPA WPS Safety Poster
- Name, address and telephone number of the nearest medical facility
- Facts about each pesticide application (from before each application begins to 30 days after the REI)
 - Application list which includes the location and description of the area to be treated.
 - Product name, EPA registration number, and active ingredient(s) of the pesticide.
 - Time and date the pesticide is scheduled to be applied.
 - Restricted entry interval for the pesticide.

Pesticide Safety Training

Agricultural workers must be trained within the first 5 days of employment. Handlers must be trained before any handling activity is performed. Workers and handlers must each be trained at least once every 5 years. Trainers must:

- Use written and/or audiovisual materials,
- Use EPA approved materials for training,
- Conduct the training orally and/or audiovisually in a manner the employees can understand with an opportunity to answer questions and
- Meet one of the following criteria to perform training:
 - Currently be a certified applicator of Restricted Use Pesticides (RUPs) or
 - Currently be designated by a State, Federal or Tribal agency having jurisdiction, as a trainer of pesticide applicators or
 - Have completed a pesticide safety Train the Trainer program conducted by a State, Federal or Tribal agency having jurisdiction.

Decontamination Supplies

Employers must establish a decontamination site within 1/4 mile of where workers and handlers are performing their duties. Handlers mixing pesticides must have a decontamination site at the mixing area.

The decontamination site must include:

- Enough water for routine washing and for eye flushing,
- An adequate supply of soap and single use towels,
- Enough water to wash the entire body (for handlers only) and
- A clean change of clothes such as coveralls (for handlers only).



Employer/Commercial Applicator Information Exchange

Before any application, commercial handler employers must make sure the operator of the agricultural establishment where a pesticide will be applied is aware of:

- Specific location and description of area (s) to be treated,
- Time and date of application,
- Product name, EPA registration number, and active ingredient,
- Restricted entry interval for the pesticide,
- Notification requirements; oral/posting and
- Any other specific requirements for the protection of workers and other persons during or after the application.

Operators of agricultural establishments must make sure any commercial pesticide establishment operator they hire is aware of:

- Specific location and description of all areas on the establishment where pesticides will be applied or where an REI will be in effect while the commercial handler is on the establishment and
- Restrictions on entering those areas.

Emergency Assistance

Agricultural employers must make emergency transportation available for workers and handlers to an emergency medical facility. In the event of a suspected poisoning, they must also provide information to the victim and medical personnel about the pesticide including:

- product name, EPA registration number and active ingredients,
- all first aid and medical information from the label,
- description of how the pesticide was used and
- information about the victim's exposure.

Get your 140-page book of the **Worker Protection Standard for Agricultural Pesticides - How to Comply, What Employers Need To Know** from my office. **\$2.00 each.**

Additional Duties for Handler Employers

- Do not allow handlers to apply a pesticide so that it contacts, either directly or through drift, anyone other than trained and PPE equipped handlers.
- Make sight or voice contact at least every 2 hours with anyone handling pesticides with a skull and crossbones on the label.
- Make sure a trained handler equipped with labeling-specific PPE maintains constant voice or visual contact with any handler in a greenhouse who is doing fumigant-related tasks, such as application or air-level monitoring.
- Before any handling task, inform handlers, in a manner they can understand, of all pesticide labeling instructions for safe use.
- Keep pesticide labeling accessible to each handler during entire handling task.
- Before handlers use any assigned handling equipment, tell them how to use it safely.

Additional Duties for Worker Employers

- During any REI, do not allow workers to enter a treated area and contact anything treated with the pesticide to which an REI applies.



Post Office Box 1319
LaBelle, FL 33975
Phone: 863-675-2180
Fax: 863-675-8087
Website: www.gulfcitrus.org

Manager's Memo

Date: October 18, 2010

Subject: U.S. Department of Labor's Agricultural Compliance Seminar

From: Ron Hamel, Executive V.P., Gulf Citrus Growers Association

Dear GCGA Member:

In January of 2004, the Gulf Citrus Growers Association signed a historic "Partnership Agreement" with the U.S. Department of Labor's Wage and Hour Division to work together to improve grower compliance with federal labor laws and improve working conditions for farm workers. One of the key components of the partnership agreement was to improve communications between growers and Department of Labor personnel. These efforts include co-sponsoring seminars and other educational activities to inform the agricultural community about the AG "labor-related" rules and regulations and how to be in "compliance" with them!

The new season's first jointly-sponsored Citrus/AG Labor Compliance Seminar is scheduled for Tuesday, November 9th at the University of Florida/IFAS Southwest Florida Research and Education Center in Immokalee (located 2685 SR 29 N). The Compliance Seminar will begin at 9:00 a.m. **LUNCH WILL BE SERVED AFTER THE SEMINAR!** **Please RSVP to Julie Carson at UF/IFAS' SWFREC at (239) 658-3462 before Friday, November 5th!** Lunch is being provided courtesy of Everglades Harvesting & Hauling, Inc.

This year's compliance seminar will focus on the most timely topics of concern, and feature Mr. Christopher R. Mills, Regional Director of Agricultural Enforcement, U.S. DOL's Wage & Hour Division, Atlanta; Tracey McQuilken, Officer, FDOT's Motor Carrier Compliance Office and other informed presenters from the federal and state agencies.

Please put this date on your calendar and spread the word to those individuals in your company having responsibilities in AG labor law compliance! Diego Neira-Flor of the U.S. Department of Labor's Wage and Hour Division can answer any of your questions. HE can be reached at (305) 412-6229 or e-mail: Neira-Flor.Diego@dol.gov.



Farm Worker Housing



Child Labor



Contractor Registration



Disclosure



Field Sanitation

AGRICULTURAL MEETING

SITE: Florida Agricultural Extension
2685 State Road 29 North
Immokalee, Florida 34142

DATE: November 9, 2010

TIME: 9:00 a.m. Welcome

9:15 a.m. Foreign Labor Certification; H-2A Program

10:00 a.m. U.S. Department of Labor

10:45 a.m. Break

11:00 a.m. State of Florida Department of Transportation

11:45 a.m. Department Of Business and Professional Regulation

12:30 p.m. Questions and Answers

RSVP: Julie Carson (239) 658-3462 - No charge to attend

For more information contact:
Diego M. Neira-Flor
Wage and Hour Investigator
U. S. Department of Labor
Wage and Hour Division
(305) 412-6229



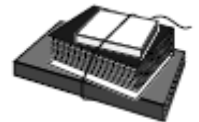
Employee Wages



Vehicle Safety



Vehicle Insurance



Record Keeping



I-9's

FLATWOODS CITRUS NEWSLETTER EVALUATION FORM

If you have not done so, please take a moment to rate the quality and usefulness of the information presented in the Flatwoods Citrus newsletter. Please send back the form to:

Dr. Mongi Zekri
University of Florida, IFAS
Hendry County Extension Office
P.O. Box 68
LaBelle, FL 33975

or e-mail it to maz@ufl.edu or fax it to: 863 674 4636. Thank you for your input!!!

Please circle or bold your answer

- | | | | |
|---|------------------------------------|----|--------------|
| 1 Did the information seem up to date and accurate? | Yes | No | Uncertain |
| 2 Was the information delivered on time to be useful? | Yes | No | Uncertain |
| 3 Was the information relevant to your situation? | Yes | No | Uncertain |
| 4 Was the information easy to understand? | Yes | No | Uncertain |
| 5 Have you had an opportunity to use the information? | Yes | No | Uncertain |
| 6 Have you shared the information with someone else? | Yes | No | Uncertain |
| 7 Overall, how do you feel about the Flatwoods Citrus Newsletter? | | | |
| Satisfied | Neither Satisfied Nor Dissatisfied | | Dissatisfied |

8 **Do you have any suggestions that might improve the newsletter?**

(Please write in any comments)

9. How many years have you been using the Extension Service? _____ Years
10. What is your employment status?
- | | | |
|--------------------------|-------------------------|------------------------|
| _____ Grower | _____ Chemical Industry | _____ Service Provider |
| _____ Production Manager | _____ Regulator | _____ University |
| _____ Consultant | _____ Association | Other _____ |

We appreciate your reactions and the time you have given us. Thank you, and please contact us when we may be of service to you.

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