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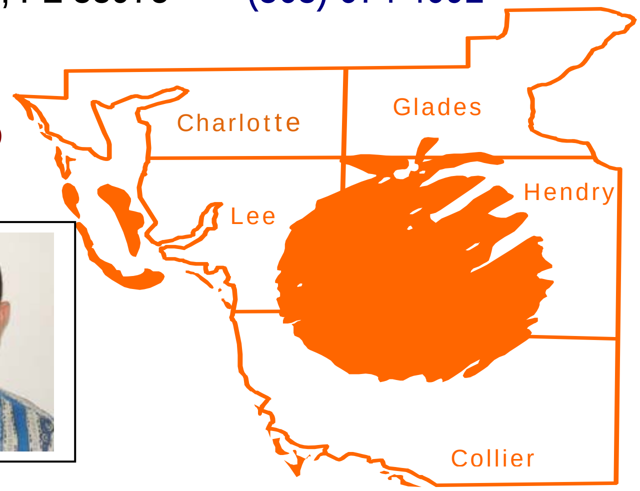
Flatwoods Citrus



Vol. 17, No. 5 **May 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/

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IMPORTANT EVENTS

CITRUS & VEGETABLE BMPs

Bicarbonates in irrigation water, maintenance of microirrigation systems, fertigation

Date & time: Wednesday, May 14, 2014, 9:30 AM – 12:00 Noon
Location: UF-IFAS Southwest Florida Research and Education Center
Program Coordinators: Mongi Zekri and Gene McAvoy, UF-IFAS
Speakers: Drs. Kelly Morgan & Monica Ozores-Hampton, UF-IFAS
2 CEUs for Certified Crop Advisors (CCAs)
Pre-registration is required. No registration fee and lunch is free**.** To reserve a seat, call 863 674 4092, or send an e-mail to Dr. Mongi Zekri at: maz@ufl.edu

2014 ANNUAL FARM SAFETY DAY in SW Florida

Date & Time: Saturday 17 May 2014, 7:30 AM – 1:00 PM
Location: Immokalee IFAS Center
Coordinator: Mongi Zekri, Citrus Extension Agent, UF-IFAS

Registration is Closed. Classes are full.

CITRUS COMPOST WORKSHOP

Date & time: Tuesday, May 20, 2014, **8:00 AM – 4:00 PM**
Location: UF-IFAS Southwest Florida Research and Education Center
Program Coordinator: Dr. Mongi Zekri, UF-IFAS
Speakers: Dr. Monica Ozores-Hampton, Dr. Jim Graham, Dr. Phil Stansly, and Dr. Kelly Morgan, UF-IFAS
2 CEUs for Certified Crop Advisors (CCAs)
Pre-registration is required. No registration fee and lunch is free**.** To reserve a seat, call 863 674 4092, or send an e-mail to Dr. Mongi Zekri at: maz@ufl.edu

Florida State Horticultural Society (FSHS) meeting

http://fshs.org/

June 1-3, 2014

Clearwater Beach Marriott Suites on Sand Key
1201 Gulf Boulevard, Clearwater Beach, FL 33767
Located in Clearwater Beach, Florida

CITRUS EXPO, IN FORT MYERS

Wednesday, August 13 & Thursday, August 14, 2014

2015 International Research Conference on Huanglongbing (HLB)

Please mark your calendars and plan to attend the 4th International Research Conference on HLB in Orlando, Florida USA
February 9-13, 2015
Please visit the IRCHLB website for more information - Click here for IRCHLB website

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Quiet 2014 hurricane season forecast

Doyle Rice, USA TODAY ***April 11, 2014***

Top forecasters from Colorado State University predict a quiet 2014 Atlantic hurricane season, suggesting that nine tropical storms will form, but only three will become hurricanes.

The forecast published Thursday follows two consecutive poor forecasts: In 2012, when more than twice as many hurricanes formed as had been predicted, and in 2013, when only two hurricanes formed after a spring prediction of nine.

A typical year, based on weather records dating to 1950, has 12 tropical storms, of which seven become hurricanes. A tropical storm has sustained winds of 39 mph; it becomes a hurricane when its winds reach 74 mph.

The forecast was released by meteorologists Philip Klotzbach and William Gray of Colorado State University's Tropical Meteorology Project. The Atlantic hurricane season runs from June 1 to Nov. 30.

Klotzbach said a predicted El Niño is one factor that led to their quiet forecast. El Niño, a climate pattern defined by warmer-than-normal water in the tropical Pacific Ocean, tends to suppress Atlantic hurricanes.

"The tropical Atlantic has ... cooled over the past several months, and the chances of a moderate to strong El Niño event this summer and fall appear to be quite high," Klotzbach said. "Historical data indicate fewer storms form in these conditions."

In 1997, during a very strong El Niño, only seven named storms formed, and only three were hurricanes.

CLIMATE FORECAST: El Niño likely later in year, could help Calif. drought

Gray's team was the first organization to issue seasonal hurricane forecasts back in 1984; this is the team's 31st forecast.

This forecast is for the Atlantic basin, which includes the Caribbean Sea and the Gulf of Mexico. Klotzbach said that of the three predicted hurricanes, only one should be a major hurricane — category 3, 4 or 5 — with sustained wind speeds of 111 mph or greater.

The Colorado State team's seasonal forecasts are a mixed bag: Since 2000, the team has forecast fewer than the actual number of hurricanes four times, forecast more five times and been almost right — within two hurricanes — five times, a USA TODAY analysis shows.

FUNDING ISSUES: Hurricane honchos stay at center of the storm, for now

Insurance companies, emergency managers and the news media use the forecasts from Colorado State to prepare Americans for the season's likely hurricane threat. The team's annual predictions are intended to provide a best estimate of activity to be experienced during the upcoming season, not an exact measure, according to Colorado State.

For the U.S. coastline, Klotzbach said there is a 35% chance of a major hurricane making landfall in 2014. For the East Coast, including all of Florida, the chance of a major hurricane strike is 20%. The chance along the Gulf Coast from the Florida Panhandle to Brownsville, Texas, is 19%.

Although a calm season is predicted overall, Klotzbach cautioned coastal residents to take the proper precautions. "It takes only one landfall event near you to make this an active season," he said.

The National Oceanic and Atmospheric Administration will be issuing its hurricane forecast in May.

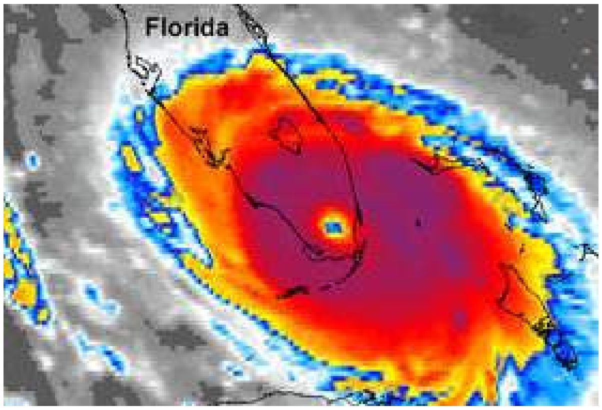
The first named storms of the Atlantic hurricane season will be Arthur, Bertha, Cristobal, Dolly and Edouard.

The eastern Pacific hurricane season starts May 15. Eastern Pacific hurricanes seldom have any impact on the U.S. but can hit the west coast of Mexico. During El Niño seasons, activity in the Eastern Pacific tends to be more active than usual.

PREPARE AND STAY AWARE!

When is Hurricane Season?

June 1 - November 30



What Is A Hurricane?

A hurricane is a tropical cyclone, which generally forms in the tropics and is accompanied by thunderstorms and a counterclockwise circulation of winds. Tropical cyclones are classified as follows:

TROPICAL DEPRESSION
An organized system of clouds and thunderstorms with a defined surface circulation and maximum sustained winds* of 38 mph or less

TROPICAL STORM
An organized system of strong thunderstorms with a defined surface circulation and maximum sustained winds of 39-73 mph

HURRICANE
An intense tropical weather system of strong thunderstorms with a well-defined surface circulation and maximum sustained winds of 74 mph or higher

STORM SURGE - is water that is pushed toward the shore by the force of the winds swirling around the storm. This advancing surge combines with the normal tides to create the hurricane storm tide, which can increase the mean water level 15 feet or more.

INLAND FLOODING - In the last 30 years, inland flooding has been responsible for more than half the deaths associated with tropical cyclones in the United States.

HIGH WINDS - Hurricane-force winds can destroy poorly constructed buildings and mobile homes. Debris such as signs, roofing material, and small items left outside become flying missiles in hurricanes.

TORNADOES - Hurricanes can produce tornadoes that add to the storm's destructive power. Tornadoes are most likely to occur in the right-front quadrant of the hurricane.

Hurricanes and tropical storms can be very devastating to agriculture including the Florida citrus industry. In 2004 and 2005, growers and farmers have seen their groves, barns, equipment and homes destroyed. If a hurricane hit our state this year, damage to trees would be of varying degrees. Some trees would be uprooted. Others would have major limbs split off or would have major defoliation. Fruit would litter the ground and grapefruit trees would suffer the most loss because of the larger size and heavier weight fruit.

PLAN AND PREPARE

Hurricanes can strike at any time during June through October. It is best to devise a hurricane plan and use it to make preparations far before the hurricane season. The hurricane plan should provide protection from a storm and recovery after the storm.

For more details, go to "Hurricane Preparedness"
by Bob Rouse and Mongi Zekri

Hurricane Preparedness

Citrus Growers Must Prepare for Hurricanes Every Year

By **Bob Rouse** and **Mongi Zekri**



Hurricane preparation for citrus growers in 2014 is the same drill as every year. Each year growers look forward to the rainy season to help grow their fruit to maturity. Along with the anticipation of the rainy season is the reality that hurricanes may bring too much water in August and September at the end of the rainy season.

Every year, there are predictions of what the hurricane season (June 1 through November 30) will bring.

Saffir-Simpson hurricane storm rating scale

Storm category	Wind speed (mph)	Expected Damage to Citrus
1	74-95	Some loss of leaves and fruit, heaviest in exposed areas
2	96-110	Considerable loss of leaves and fruit with some trees blown over
3	111-130	Heavy loss of foliage and fruit, many trees blown over
4	131-155	Trees stripped of all foliage and fruit, many trees blown over and away from property
5	over 155	Damage would be almost indescribable, groves and orchards completely destroyed

The coastal area of Florida where citrus is grown has been extraordinarily lucky in recent years, except for the destructive hurricane seasons of 2004 and 2005. The three hurricanes that impacted citrus in 2004 were Charley (August), ripping the Gulf Coast up through central Florida, and Frances and Jeanne (September), which devastated east coast groves. In 2005, Wilma (October) caused fruit loss and some tree loss in south Florida.

The bottom line is predictions are dubious and a curiosity, and shouldn't affect what we must do. We must prepare every year, regardless of weather predictions. Little can be done to protect trees and fruit from hurricane velocity wind, but we can take steps to protect the people, equipment and supplies that will be needed for the recovery. Below is a checklist for citrus grove managers.

Pre-Hurricane Preparation Checklist

Personnel assignments:

1. Make a list of all tasks and make assignments.
2. Update the names on the damage inspection team.
3. Update worker contact list and means for them to call in after the storm.

Safety training:

Train workers in the safe operation of unfamiliar equipment they may have to use.
Example: Drivers may have to use chain saws to remove downed trees blocking roads.

Insurance:

Buildings, equipment including tractors, irrigation parts, and supplies may be damaged.

Buildings:

1. Close storm shutters or board up windows.
2. Store loose, light-weight objects such as garbage cans and tools.

Liquid tanks:

1. Keep fuel, fertilizer and other tanks full so they don't move in the wind.
2. Ensure sufficient fuel is available.

Roads and Ditches:

1. Clear, grade, and keep roads well maintained and keep ditches clean and pumped down.
2. Arrange with a flying service for grove manager to survey grove damage.

Emergency equipment:

1. Test-run generators, chain saws, torches, air compressors, and other equipment.
2. Have shovels, slings, fuel, paint, and equipment parts available in good repair.
3. Know where to obtain backhoes, front-end loaders, and other heavy equipment.

Communications equipment:

1. Ensure that radios are in good working order.
2. Have hand-held portable radios with extra charged battery packs available.
3. Direct truck-to-truck radio and cellular phones save valuable time during recovery.

Hazardous materials:

1. Secure hazardous materials prior to a storm.
2. Shut down gasoline pumps.

Emergency contacts:

1. Have a list of emergency phone numbers, including electric companies, sheriff, and medical.

Cultural Practices:

1. Regular pruning can reduce broken limbs and minimize toppled or uprooted trees.
2. Windbreaks reduce tree damage and spread of citrus canker bacterium.

Post-Hurricane Recovery Checklist

Damage inspection:

Make a visual assessment of the damage and determine priorities and equipment needed.

Prioritize Damage:

A priority plan can quickly determine where and how to begin recovery operations.

Employee call-in:

When safe, call in those needed for damage inspection and grove recovery work.

Clear road access:

Clear roads to where trees must be reset or recovery activities must be conducted.

Water removal:

Remove excess water from tree root zones within 72 hours to avoid root damage.

Tree rehabilitation:

1. Resetting trees to an upright position should be accomplished as soon as possible.
2. Toppled trees should be pruned back to sound wood.
3. Painting exposed trunks and branches with white latex paint helps prevent sunburn.

Irrigation:

Check the irrigation system as rehabilitation is a long process and water is critical.

Fertilizer:

1. Plant nutrients should be applied when new growth begins.
2. Toppled trees will require less fertilizer due to reduced root system and tree canopy.
3. Reduce N fertilizer proportionally to canopy or leaf loss.
4. The following year, trees may require more-than-normal rates to re-establish canopy.
5. Micronutrients should be applied in nutritional sprays to the leaves.

Weeds:

Resume row middles mowing and herbicide applications on a normal schedule.

HLB ESCAPE TREES

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

EL NIÑO/SOUTHERN OSCILLATION (ENSO) DIAGNOSTIC DISCUSSION

issued by

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

8 May 2014

ENSO Alert System Status: El Niño Watch

Synopsis: Chance of El Niño increases during the remainder of the year, exceeding 65% during summer.

ENSO-neutral continued during April 2014, but with above-average sea surface temperatures (SST) developing over much of the eastern tropical Pacific as well as persisting near the International Date Line. The weekly SST indices were near to slightly above average and increasing in the Niño1+2, Niño3 and Niño3.4 regions, and above average in the Niño4 region. The downwelling phase of a strong oceanic Kelvin wave that began in January greatly increased the oceanic heat content during March and April, and produced large positive subsurface temperature anomalies across the central and eastern Pacific. The upper portion of these subsurface anomalies reached the sea surface, warming the waters east of 125ºW longitude. Also during April, weak low-level westerly wind anomalies were observed over the far western Pacific, while upper-level easterly anomalies occurred over much of the Pacific. Convection was enhanced over the west-central equatorial Pacific. These atmospheric and oceanic conditions collectively indicate a continued evolution toward El Niño.

The model predictions of ENSO for this summer and beyond are indicating an increased likelihood of El Niño compared with those from last month. Most of the models indicate that ENSO-neutral (Niño-3.4 index between -0.5°C and 0.5°C) will persist through part of the remainder of the Northern Hemisphere spring 2014 (Fig. 6), most likely transitioning to El Niño during the summer. There remains uncertainty as to exactly when El Niño will develop and an even greater uncertainty as to how strong it may become. This uncertainty is related to the inherently lower forecast skill of the models for forecasts made in the spring. While ENSO-neutral is favored for Northern Hemisphere spring, the chance of El Niño increases during the remainder of the year, exceeding 65% during the summer (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 for the evolution of El Niño/La Niña are updated monthly in the Forecast Forum section of CPC's Climate Diagnostics Bulletin. The next ENSO Diagnostics Discussion is scheduled for 5 June 2014. To receive an e-mail notification when the monthly ENSO Diagnostic Discussions are released, please send an e-mail message to: ncep.list.enso-update@noaa.gov.

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LIVING WITH LOVEBUGS

http://edis.ifas.ufl.edu/in694

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

The "lovebug," is a seasonally abundant member of a generally unnoticed family of small flies related to gnats and mosquitoes. The males are about 1/4 inch and the females 1/3 inch in length, both entirely black except for red on top of their thoraxes (middle insect body segment). Other common names for this insect include March flies, double-headed bugs, honeymoon flies, united bugs, and some expletives that are not repeatable. Lovebugs characteristically appear in excessive abundance throughout Florida as male-female pairs for only a few weeks every April-May and August-September (IPM Florida 2006). 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

Although the lovebug has two distinct generations per year in Florida, adults can be found during most months (Buschman 1976). Higher temperatures cause adult populations to peak slightly earlier in the southern areas of the state. As in all other flies, lovebugs exhibit complete metamorphosis, having egg, larva, pupa and adult stages (Figure 3). An individual female deposits an average of 350 eggs under decaying vegetation in a grassy or weedy area with adequate moisture. Conditions must not be too wet or dry, although the larvae soon emerge and can move short distances to locate the best habitats. Larvae develop more rapidly at higher temperatures, so the summer generation is shorter than the one in the winter. The larvae feed on decomposing leaves and grass until they pupate. The pupal stage lasts 7-9 days (Hetrick 1970). In nature, the adults live just long enough to mate, feed, disperse and deposit a batch of eggs, about 3-4 days (Thornhill 1976b).

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. Groups of about 300 larvae have been found on or near the surface of the soil among the roots of grasses (Thornhill 1976a).

Lovebug Myths

Lovebugs escaped after University of Florida researchers brought them into Florida. Lovebugs are not native to most of the southern United States (Hardy 1945). According to Buschman (1976), since 1940 *P. nearctica* has extended its range from Louisiana and Mississippi across the Gulf States, reaching Florida in 1949. In the late 1960s, it became established entirely across north Florida. During the 1970s explosive populations occurred progressively southward nearly to the end of peninsular Florida and northward into South Carolina (Figure 4). Its movement may have been accelerated by prevailing winds, vehicle traffic, sod transport, increased habitat along highways, and expansion of pastures, but not by UF researchers.

University of Florida researchers genetically engineered lovebugs to kill mosquitoes. Lovebugs are small, slow herbivorous insects that feed on the pollen and nectar found in flowers. Thus, they lack the mandibles (jaws), grasping legs, speed, and other characteristics of predaceous insects, such as dragonflies. Lovebugs are active during the day, whereas most mosquitoes are crepuscular (active at twilight) or nocturnal, and they are only adults for a few weeks each year. For these and many other reasons, the lovebug would be a poor candidate to genetically engineer as a mosquito predator, even if it were possible.

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. Cherry (1998) found that 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 (Callahan and Denmark 1973, Callahan et al. 1985). 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 (Whitesell 1974) and contribute to their abundance on highways. Additionally, lovebugs seem to collect on light-colored buildings, especially when freshly painted (Callahan 1985). 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.

Dispersing lovebugs move great distances and are attracted to homes. Lovebug pairs are not strong fliers, so tend to remain within a few hundred yards of emergence sites when there is little or no wind (Thornhill 1976b). They are able to move across the wind when it is 5-7 mph and search for sources of nectar and suitable oviposition sites. Stronger winds blow them as high as 1500 ft in the air and concentrate them against down-wind objects. Coupled females initiate and control flight but males assist if they are able to obtain food (Sharp et al. 1974). Locations within 20-30 miles can have quite different levels of lovebug emergence and dispersal (Cherry and Raid 2000), and this variable distribution can lead to naturally occurring "hotspots" in different places from year to year. Lovebugs are most abundant in moist grassy habitats. People who live near these habitats, or are exposed to winds that deposit the insects at their homes, can perceive erroneously that they are attracting these pests.

Lovebugs mate the entire time they are coupled. The general pattern of mating in lovebugs begins with males forming swarms above emergence areas each day in the morning and afternoon (Leppla et al 1974, Thornhill 1976c). Individual males also may fly just above these areas. Females emerge from the soil later than males, crawl onto vegetation, and fly into the swarms. A male may grasp a female before or after she flies into a swarm. In either case, the pair lands on vegetation where the male transfers sperm to the female. Sperm transfer requires an average of 12.5, hours but the pair can remain coupled for several days during which they feed and disperse (Thornhill 1976c). The male ejects a depleted spermatophore after separating from the female (Leppla et al. 1975), and both sexes may mate again. Pairs formed during the morning hours begin dispersal flights, whereas those that couple in the evening remain on vegetation until taking flight the following day.

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. Marisa and Jeffrey Gedney (personnel communication) determined that 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 (Denmark and Mead 2001). 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 (Hetrick 1970, Mousseau 2004). Apparently lovebugs adults are avoided by red imported fire ants, *Solenopsis invicta* Buren (=*S. wagneri* Santschi), 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 (Dunford et al. 2008).

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 (Kish et al. 1974). 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.

Insecticides are effective in controlling lovebugs. Insecticides available to the public for controlling houseflies, mosquitoes, and other flies will also kill lovebug adults. However, there are risks associated with using these products around humans and pets, and the lovebugs will return almost immediately. Other insects are often misidentified as being lovebugs, some of which are innocuous or beneficial, and therefore, should not be killed. It is important to preserve lady beetles, lacewings, honeybees, and other insects that help to protect or pollinate plants. Thus, insecticides are expensive, potentially harmful, and of no value in controlling lovebugs. It is best just to avoid lovebugs if they become a nuisance during their brief appearances each year.

University of Florida scientists are working to control lovebugs. The University of Florida research programs in urban and public health entomology are among the strongest in the U.S. Priority is placed on destructive or dangerous pests that threaten human health and resources. These pests include mosquitoes that transmit West Nile virus, equine encephalitis, and other diseases; those that infest people, livestock and pets; and urban insects, such as cockroaches, ants, and termites. Nuisance pests like lovebugs and blind mosquitoes are important but much less damaging and costly. The Florida Legislature funded research on lovebugs at the University of Florida during the outbreak that swept through the state in the early 1970s. Additional resources were contributed by the USDA and Florida Department of Agriculture and Consumer Services, Division of Plant Industry. Even though this support is no longer available, the University of Florida continues to provide information to help educate Florida residents and tourists about lovebugs.

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. Moreover, if they were larger, people could easily see and admire their delicate features, particularly the big round eyes of the males. Wilhelm Rudolph Wiedemann named the lovebug genus *Plecia* in 1828, so his concept for the term may never be known. A reasonable guess, however, is that he applied the Greek verb "pleo" intending to mean "to sail" (Jaeger, E. C. 1955). Lovebugs sail from flower to flower much like butterflies and in smaller numbers could be perceived as beautiful. They have become less abundant over the past 30 years, and people living in the Gulf States are beginning to accept them as a normal part of nature. However, newcomers are much less tolerant of lovebugs until they learn that these insects are not dangerous. Since lovebug populations tend to rebound unpredictably, we are fortunate that these creatures create inconveniences and tickle, rather than threaten human health and the environment.

CITRUS RUST MITES

Rust mites are found on all citrus varieties throughout Florida. Rust mite population densities increase in May-July and then decline in late August, but can increase again in late October or early November. While the primary effect of fruit damage caused by rust mites appears to be a reduction in grade, other conditions have been associated with severe fruit injury such as reduced size. Severe leaf injury to some specialty varieties (Sunburst, Ambersweet, Fallglo) can lead to leaf drop.

Citrus groves producing fruit designated for the fresh market may receive 3-4 miticides/year typically during April, June, August, and October. In contrast, groves producing fruit designated for processing may not need to be treated. Miticides applied for the control of rust mites on fresh fruit varieties are often combined with compatible fungicides in the spring and summer. An alternative approach is using petroleum oil as a fungicide for greasy spot control and to suppress mites, psyllids, and leafminers. Scouting for rust mite populations is very important for efficient control.
For more information, go to:
http://www.crec.ifas.ufl.edu/extension/pest/PDF/2014/Rust%20Mites.pdf

CITRUS MITICIDE SELECTION*

Supplemental (early Spring)	Post Bloom	Summer	Fall	Supplemental Fall
--	--	Agri-mek + oil	--	--
--	--	--	Comite	Comite
Envidor	Envidor	Envidor	Envidor	Envidor
--	Petroleum oil	Petroleum oil	Petroleum oil	--
--	--	--	Sulfur	Sulfur
--	--	Micromite	Micromite	--
--	--	--	Nexter	Nexter
Movento	Movento	Movento	--	--
Vendex	Vendex	--	Vendex	Vendex

***Except for petroleum oil, do not use the same miticide chemistry more than once a year.**

DO NOT FORGET GREASY SPOT

Management of greasy spot must be considered in groves intended for processing and fresh market fruit. Greasy spot is usually more severe on leaves of grapefruit, pineapples, Hamlins, and tangelos than on Valencias, Temples, Murcotts, and most tangerines and their hybrids.

Greasy spot spores germinate on the underside of the leaves and the fungus penetrates through the stomates (natural openings on lower leaf surface). Warm humid nights and high rainfall, typical of Florida summers, favor infection and disease development.

On processing Valencias, a single spray of oil (5-10 gal/acre) or copper + oil (5 gal/acre) should provide acceptable control when applied from mid-May to June. With average quality copper products, 2 lb of metallic copper per acre usually provide adequate control. The strobilurin fungicides (Abound, Gem, Headline or Quadris), as well as Enable 2F, are also suitable with or without petroleum oil. On early and mid-season oranges and grapefruit for processing, two sprays may be needed especially in the southern part of the state where summer flushes constitute a large portion of the foliage. Two applications also may be needed where severe defoliation from greasy spot occurred in the previous year. In those cases, the first spray should be applied from mid-May to June and the second soon after the major summer flush has expanded. Copper fungicides provide a high degree of control more consistently than oil sprays. Control of greasy spot on late summer flushes is less important than on the spring and early summer growth flushes since the disease develops slowly and defoliation will not occur until after the next year's spring flush. Thorough coverage of the underside of leaves is necessary for maximum control of greasy spot, and higher spray volumes and slower tractor speeds may be needed than for control of other pests and diseases.

The program is essentially the same for fresh fruit. That is, a fungicide application in May-June and a second in July should provide control of rind blotch.

A third application in August may be needed if rind blotch has been severe in the grove. Petroleum oil alone is less effective than other fungicides for control of greasy spot rind blotch (GSRB). Heavier oils (455 or 470) are more effective for rind blotch control than are lighter oils (435).

Copper fungicides are effective for control of GSRB, but may result in fruit spotting especially if applied at high rates in hot, dry weather or if applied with petroleum oil. If copper fungicides are applied in summer, they should be applied when temperatures are moderate, at rates no more than 2 lb of metallic copper per acre, without petroleum oil or other additives, and using spray volumes of at least 125 gal/acre. Enable 2F can be applied for greasy spot control at any time but is especially indicated in mid to late summer for rind blotch control.

The strobilurin fungicides (Abound, Gem, Headline, or Quadris) or Enable 2F can be applied at any time to all citrus and provide effective control of the disease on leaves or fruit. Use of a strobilurin (Abound, Gem, Headline or Quadris) is especially indicated in late May and early June since it will control both melanose and greasy spot and avoids potential fruit damage from the copper fungicides at that time of year. A strobilurin fungicide should not be applied more than once a year for greasy spot control. Addition of petroleum oil increases the efficacy of these products.

•Processed fruit

May-June

- Petroleum oil (455, 470) 5-10 gal
- Cu fungicides 2-4 lb metal
- Abound, Gem, Headline + 5 gal oil
- Pristine
- Quadris Top
- Enable

July

- Petroleum oil (455, 470) 5-10 gal
- Cu fungicides 2-4 lb metal
- Abound, Gem, Headline + 5 gal oil
- Pristine
- Quadris Top
- Enable

•Fresh fruit

May-June

- Petroleum oil (455, 470) 10 gal
- Cu fungicides < 2 lb metal, No oil
- Abound, Gem, Headline + 5 gal oil
- Pristine
- Quadris Top

July

- Petroleum oil (455, 470) 10 gal
- Cu fungicides < 2 lb metal
- Abound, Gem, Headline + 5 gal oil
- Pristine
- Quadris Top
- Enable 8 oz. + 5 gal oil

For more information on greasy spot, go to:

http://www.crec.ifas.ufl.edu/extension/pest/PDF/2014/Greasy%20Spot.pdf

Water Quality: Alkalinity and Hardness

The terms alkalinity and hardness are often used interchangeably when discussing water quality. They share some similarities but are distinctly different.

Alkalinity is a measure of the acid-neutralizing capacity of water. It is an aggregate measure of the sum of all titratable bases in the sample. Alkalinity in most natural waters is due to the presence of carbonate ($CO_3^{=}$), bicarbonate (HCO_3^-), and hydroxyl (OH^-) anions. However, borates, phosphates, silicates, and other bases also contribute to alkalinity if present. This property is important when determining the suitability of water for irrigation and/or mixing some pesticides. Alkalinity is usually reported as equivalents of calcium carbonate ($CaCO_3$).

Hardness is most commonly associated with the ability of water to precipitate soap. As hardness increases, more soap is needed to achieve the same level of cleaning due to the interactions of the hardness ions with the soap. Chemically, hardness is often defined as the sum of polyvalent cation concentrations dissolved in the water. The most common polyvalent cations in fresh water are calcium (Ca^{++}) and magnesium (Mg^{++}).

Hardness is usually divided into two categories: *carbonate hardness* and *noncarbonate hardness*. Carbonate hardness is usually due to the presence of bicarbonate [$Ca(HCO_3)_2$ and $Mg(HCO_3)_2$] and carbonate ($CaCO_3$ and $MgCO_3$) salts. Noncarbonate hardness is contributed by salts such as calcium chloride ($CaCl_2$), magnesium sulfate ($MgSO_4$), and magnesium chloride ($MgCl_2$). Total hardness equals the sum of carbonate and noncarbonate hardness. In addition to Ca^{++} and Mg^{++}, iron (Fe^{++}), and manganese (Mn^{++}) may also contribute to hardness. However, the contribution of these ions is usually negligible.

Hardness is generally classified as soft, moderately hard, hard, and very hard. It is best to report results as the actual equivalents of $CaCO_3$ since the inclusive limits for each category may differ between users of the information. The classification scheme used by the U.S. Environmental Protection Agency (EPA) is shown in Table 1.

Table 1. Water hardness classifications (reported as $CaCO_3$ equivalents) used by the U.S. EPA.

Classification	$CaCO_3$ equivalent, mg/L (ppm)
Soft	<75
Moderately hard	75–150
Hard	150–300
Very hard	>300

Sources of Alkalinity and Hardness

Water alkalinity and hardness are primarily a function of 1) the geology of the area where the surface water is located and 2) the dissolution of carbon dioxide (CO_2) from the atmosphere. The ions responsible for alkalinity and hardness originate from the dissolution of geological minerals into rain and ground water. Rainwater is naturally acidic, which tends to solubilize some minerals more easily. Surface and ground water sources in areas with limestone formations are especially likely to have high hardness and alkalinity due to the dissolution of bicarbonates and carbonates. Bicarbonate (HCO_3^-) dominates between pH 6.3 and 10.3. The pH of most natural waters falls in the 7 to 8 range because of the bicarbonate buffering.

Alkalinity and Hardness Relationship

Alkalinity and hardness are related through common ions formed in aquatic systems. Specifically, the counter-ions associated with the bicarbonate and carbonate fraction of alkalinity are the principal ions responsible for hardness (usually Ca^{++} and Mg^{++}). As a result, the carbonate fraction of hardness (expressed as $CaCO_3$ equivalents) is chemically equivalent to the bicarbonates of alkalinity present in water in areas where the water interacts with limestone. Any hardness greater than the alkalinity represents noncarbonate hardness.

Hardness by Calculation

Hardness can be measured by titration or by quantification of individual ion concentrations (Ca^{++} and Mg^{++}) contributing to hardness. Using the calculation technique, separate determinations of calcium and magnesium are made using an appropriate analytical technique. Hardness is calculated using this equation.

Hardness (as mg $CaCO_3$/L) = 2.497•[Ca, mg/L] + 4.118•[Mg, mg/L]

Neutralizing Excess Bicarbonates from Irrigation Water in Florida

By Gerald Kidder and Ed Hanlon, UF-IFAS

Many sources of irrigation water in Florida contain dissolved bicarbonates. Irrigation with such water can cause adverse plant growth by excessively raising the pH of the soil. The magnitude of the effect depends on the concentration of the bicarbonates in the water, the amount of the water applied, the buffering capacity of the soil, and the sensitivity of the citrus variety/rootstock being grown.

This publication addresses this important water quality problem and suggests management practices to minimize adverse effects on citrus tree growth and production.

1. Where in Florida is the problem most likely to occur?

The problem of high dissolved bicarbonates is likely to occur wherever water comes from a limestone aquifer, such as the Floridan or Biscayne, or from lakes or canals that cut into limestone. Thus, this is a potential problem in most of Florida.

2. How can I find out if I have high-bicarbonate water?

A water test is the surest means of determining if a problem exists. Interpretation of the test should include an evaluation of the liming potential of your water. This is best determined directly by titration of the water with an acid to the methyl orange end point. An indirect method which uses the calcium (Ca) and magnesium (Mg) analyses may also be used but may result in over-estimation of liming potential. Such an estimate assumes that all of the Ca and Mg are present as bicarbonates, which is not always the case. Many Soil Testing Laboratories offer a water test for bicarbonates.

3. Isn't it sufficient to just measure the water's pH?

If the pH of your irrigation water is below 7.0, then we may safely assume that it will not be a significant source of liming materials. However, if the pH is above 7.0, we know that the water contains bases but we don't know how much. For example, one water source may have a relatively high pH of 8 and yet contain a very low level of bicarbonates. Another water source, with the same pH, may have a very high bicarbonate level.

4. How are Ca and Mg analyses useful?

Multiplication of parts per million (ppm) Ca by 0.05 and ppm Mg by 0.083, and summing the two products, will give the milliequivalents of those cations per liter (me/L) of water. In many cases, Ca and Mg will be associated with bicarbonate and carbonate salts. Under those conditions, the me/L of Ca plus Mg will be a good estimate of the me/L of associated bases. However, if other non-basic ions such as sulfate are present, the calculation would overestimate the base content of the water. Thus, Ca and Mg analyses may be useful in estimating base content but should be used with caution.

5. In which crop situations am I likely to have a problem with high pH water?

Trifoliate and most trifoliate hybrid rootstocks are particularly sensitive to high pH soil are trees budded onto them usually exhibit ill effects of high bicarbonate water through micronutrient deficiency symptoms. Trees budded on Swingle rootstock are well-known for their sensitivity to pH-induced iron chlorosis. Trees budded on citrange rootstocks have shown manganese and zinc deficiencies when the soil pH has been raised by heavy or prolonged use of "hard" water (i.e., water with lots of Ca and Mg bicarbonates).

6. Which irrigation situations are most problematic?

Heavy irrigations applied to soils of low buffering capacity will present the most problems to citrus trees.

7. What can I do to minimize the adverse effects of high-bicarbonate water?

Be careful not to over-irrigate. Know the water holding capacity of your soil and apply only enough water without exceeding the root zone water-holding capacity. Over-irrigation is costly in many ways -- the cost of pumping, of leached nutrients, of wasted water resources and, in this case, of accelerating the increase in soil pH. Avoid these with good irrigation management.

Apply acids or acid-forming materials to the soil to counteract the bases applied in the water.

Neutralize the liming effect of the water by adding acid to the water before it is applied to the trees.

8. What can be done if the trees are already suffering from water-induced high pH?

Where high levels of bicarbonates in the water have caused soil to be too high for proper tree performance, it may be necessary to lower the soil pH. This may be accomplished by addition of extra acid in the irrigation water, use of acid-forming fertilizer in certain cases, or application of elemental sulfur to the soil.

It is important to note that the acid-producing effect of sulfur comes from the formation of sulfuric acid when soil bacteria act on the elemental sulfur. The sulfate form of sulfur applied in fertilizers such as potassium sulfate, magnesium sulfate, or gypsum (calcium sulfate) does not have the acid-producing effect of elemental sulfur.

Sulfur application rates of 300 to 500 pounds per acre should not be exceeded. This rate is equivalent to between 0.7 and 1.1 lbs/100 square feet of treated surface area. Over-application of sulfur or acid can cause damage to trees, an effect you certainly want to avoid. Monitor changes carefully.

Remember the pH will increase again as you continue to irrigate with high bicarbonate water. Water or soil acidification will be a continuing effort.

9. Can acid-forming fertilizers keep the soil pH from getting too high?

Under many circumstances the quantity of bases that is being supplied in the irrigation water far exceeds the quantity of acid formed by addition of fertilizer. Under those conditions acid-forming fertilizer will not control the problem of increasing soil pH.

10. How can I neutralize the bicarbonates in my irrigation water?

Injection of acid into the irrigation water is a direct way of neutralizing the bases present. Acid may be injected in much the same way as fertilizer. You must take precautions to avoid injuring yourself and your trees and to avoid contamination of the aquifer. These points are discussed below.

11. How much acid should I apply?

The amount of acid that you mix with the irrigation water will depend on the quantity of bases your water contains and on the strength of the acid you use. The base content of the water is determined in the water test and the strength of the acid is given on the container. One milliequivalent (me) of acid completely neutralizes one milliequivalent of base. For example, if an irrigation water contains 5.2 me of bases per liter, it would take 5.2 me of acid to completely neutralize the liter of water. Neutralization of 80 to 90% of the bases in water is a reasonable goal for most irrigation situations.

Multiply the factor by the milliequivalents of base per liter (me/L) which your water contains. This value is determined in the laboratory test of your water or is estimated from its Ca and Mg contents (this calculation is described under Question 4).

The result is the milliliters of your acid which you should apply to each 100 gallons of your water. The factor is calculated to neutralize 80% of the bases in the water. There are 29.6 ml in one U.S. fluid ounce. Divide the number of ml by 29.6 to convert to U.S. fluid ounces.

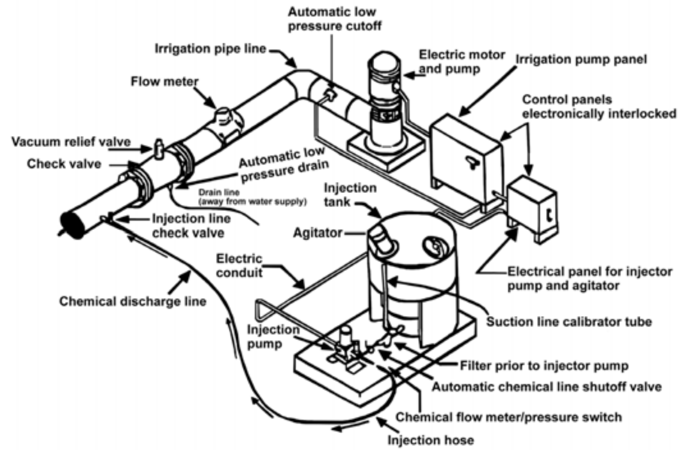
$$80\% \times \frac{me\ base}{L\ water} \times \frac{378\ L}{to\ be\ neutralized} \times \frac{1}{34.7\ N\ acid} = 8.7 \times \frac{me\ base}{L\ water}$$

NOTE:When calculating your rates for larger volumes, be careful not to round off too soon when making conversions.

12. Why not neutralize 100 percent of the bases?

Some of the reasons for not attempting to neutralize 100% of the bases are:

It is not necessary to neutralize all of the bases in order to reduce the problem to insignificant levels. Not trying for 100% neutralization allows some room for error in acid application rates, variability in water, etc. The risk of over-acidifying is not worth the benefit of neutralizing the last 10 or 20 % of the bases. It is poor management to spend money and effort creating new problems by over-reacting to the initial problem.



13. In what kind of irrigation system can I practically inject acid?

Neutralization is relatively easy to accomplish in microirrigation systems. The system must allow careful addition of known volumes of acid to known volumes of water. Since acids can be quite corrosive to metals, the system must be able to withstand this possible adverse effect.

NOTE: It is illegal to inject any chemicals into irrigation systems without appropriate safety devices which will automatically prevent the backflow of water and chemicals to the water supply. This is done to protect our water resources.

14. What kind of acid can I use?

The most commonly used acids are sulfuric, hydrochloric, and phosphoric acid. Other acids could be used but cost and availability usually limit the choices to these three. Phosphoric and sulfuric acids may have some nutritional value but this should be a minor consideration in choosing an acid for water neutralization.

15. What are the dangers of using acids for water neutralization?
Hydrochloric, sulfuric and phosphoric acids are highly toxic materials irritating to the skin, eyes, nose, throat, lungs, and digestive tract. Always wear goggles and chemical resistant (rubber, neoprene, vinyl, etc.) gloves, apron and boots whenever handling these acids. Acid must be poured into water, never vice versa, and should be done in a well-ventilated area.
Should a spill or splash occur, remove all clothing and shower immediately. Immediately irrigate eyes with large quantities of water. Seek immediate medical attention.
It is generally advisable to dilute concentrated acid in a nonmetal mixing tank prior to injection into the irrigation system, rather than injecting concentrated acid directly. Most metal fittings, tanks, and other parts of the irrigation system will be damaged by acid, so proper precautions must be taken. Flushing the system after application is frequently sufficient to avoid significant damage.
In addition to the dangers involved with handling strong acids there is also the danger of over-application of acid. Excess acid addition could result in injury to tree parts which come in direct contact with the water, such as leaves. Also, an excessive acidification of the soil could result in tree injury or death. These problems can be avoided by (1) determining the proper amount of acid to apply and (2) monitoring the irrigation system to ensure that the correct amount is applied.

16. How can I assure that I'm adding the correct amount of acid to my water?
Monitoring the pH of the acid-treated water is one way of checking on a daily operational basis. You can do this with a pH meter. Add acid to bring the water pH to between 4.5 and 5.0. Because the neutralization reaction continues slowly over a period of a day or two, the measured pH of the water immediately after acid addition will usually be lower than that measured once the reaction is complete. For monitoring purposes during acid additions, use the pH measured immediately after acid addition as a guide to avoid over-acidifying.
If the pH after treatment is very different from that calculated from the chemical analysis, you may want to have another water sample analyzed.

Summary
1. Have your irrigation water tested.
2. Select an acid of known strength.
3. Determine how much of your acid is needed to neutralize 80% of the bases in your water.
4. Add the calculated amount of acid to your water.
5. Measure the pH of the water as it comes out of the irrigation line.
6. If the pH is not between 4.5 and 5.0, increase or decrease the amount of acid.
7. If the amount of adjustment in Step 6 is more than 15 to 20% of the calculated value, consult a specialist before extended use of the system.
8. Retest the well water and irrigated soil about once a year and keep a record of the test results.

United States Department of Agriculture
National Agricultural Statistics Service

CITRUS
MAY FORECAST
MATURITY TEST RESULTS AND FRUIT SIZE

Cooperating with the Florida Department of Agriculture & Consumer Services
2290 Lucien Way, Suite 300, Maitland, FL 32751-7057
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May 9, 2014

Florida All Orange Production Up less than 1 percent
Florida Non-Valencia Orange Production Up 1 percent
Florida Valencia Orange Production Unchanged
Florida All Grapefruit Production Down 3 Percent
Florida All Tangerine Production Unchanged
Florida Tangelo Production Unchanged
Florida FCOJ Yield 1.58 Gallons per Box (42º Brix)

FORECAST DATES – 2013-2014 SEASON
[Release time 12:00 p.m. EDT]
June 11, 2014 July 11, 2014

Citrus Production by Type and State – United States

Crop and State	Production [1]			2013-2014 Forecasted Production [1]	
	2010-2011	2011-2012	2012-2013	April	May
	(1,000 boxes)	(1,000 boxes)	(1,000 boxes)	(1,000 boxes)	(1,000 boxes)
Non-Valencia Oranges [2]					
Florida	**70,300**	**74,200**	**67,100**	**53,000**	**53,300**
California [3]	48,000	45,500	42,500	42,000	42,000
Texas [3]	1,700	1,108	1,499	1,601	1,601
United States	120,000	120,808	111,099	96,601	96,901
Valencia Oranges					
Florida	**70,200**	**72,500**	**66,500**	**57,000**	**57,000**
California [3]	14,500	12,500	12,000	12,000	12,000
Texas [3]	249	311	289	404	404
United States	84,949	85,311	78,789	69,404	69,404
All Oranges					
Florida	**140,500**	**146,700**	**133,600**	**110,000**	**110,300**
California [3]	62,500	58,500	54,500	54,000	54,000
Texas [3]	1,949	1,419	1,788	2,005	2,005
United States	204,949	206,119	189,888	166,005	166,305
Grapefruit					
Florida-All	**19,750**	**18,850**	**18,350**	**16,000**	**15,600**
White	**5,850**	**5,350**	**5,250**	**4,000**	**4,100**
Colored	**13,900**	**13,500**	**13,100**	**12,000**	**11,500**
California [3]	4,310	4,000	4,500	4,000	4,000
Texas [3]	6,300	4,800	6,100	6,070	6,070
United States	30,360	27,650	28,950	26,070	25,670
Lemons [3]					
California	20,500	20,500	21,000	20,000	20,000
Arizona	2,500	750	1,800	1,785	1,785
United States	23,000	21,250	22,800	21,785	21,785
Tangelos					
Florida	**1,150**	**1,150**	**1,000**	**880**	**880**
Tangerines					
Florida-All	**4,650**	**4,290**	**3,280**	**2,950**	**2,950**
Early [4]	**2,600**	**2,330**	**1,910**	**1,750**	**1,750**
Honey	**2,050**	**1,960**	**1,370**	**1,200**	**1,200**
California [3 5]	10,600	10,800	13,000	13,200	13,200
Arizona [3 5]	300	200	200	200	200
United States	15,550	15,290	16,480	16,350	16,350

[1] Net pounds per box: oranges in California-80, Florida-90, Texas-85; grapefruit in California-80, Florida-85, Texas-80; lemons-80; tangelos-90; tangerines and mandarins in Arizona and California-80, Florida-95.
[2] Navel and miscellaneous varieties in California. Early (including Navel) and midseason varieties in Florida and Texas. Small quantities of tangerines in Texas and Temples in Florida.
[3] Estimates carried forward from April.
[4] Fallglo and Sunburst varieties.
[5] Includes tangelos and tangors.

All Oranges 110.3 Million Boxes

The 2013-2014 Florida all orange forecast released today by the USDA Agricultural Statistics Board is 110.3 million boxes, up less than one percent from last month, and 17 percent less than last season's final production figure. The total includes 53.3 million boxes of non-Valencia oranges (early, midseason, Navel, and Temple varieties) and 57.0 million boxes of Valencia oranges. The hurricane seasons of 2004-2005 and 2005-2006 have been excluded from the usual 10-year regression analysis and from comparisons of the current season to previous seasons. For those previous 8 seasons, the May forecast has deviated from final production by an average of 2 percent with 5 seasons below and 3 above, and differences ranging from 3 percent below to 3 percent above. All references to "average", "minimum", or "maximum" refer to the previous 8 non-hurricane seasons unless noted.

Non-Valencia Oranges 53.3 Million Boxes

The forecast of non-Valencia orange production is raised to 53.3 million boxes. Harvest is complete for the included varieties. The Navel portion of the non-Valencia forecast is 1.95 million boxes.

Valencia Oranges 57.0 Million Boxes

The forecast of Valencia production remains at 57.0 million boxes. If realized, this harvest will be the least in over two decades. Estimated certifications throughout April averaged nearly 5 million boxes weekly. Processors were surveyed regarding fruit processed through April 30 and estimated quantity remaining for processing this season. Results of this survey support continuation of the current forecast. The Row Count survey, conducted April 29-30, showed 58 percent of the rows harvested. Estimated utilization to the first of May is 32.4 million boxes.

All Grapefruit 15.6 Million Boxes

The forecast of all grapefruit production is lowered 400,000 boxes to 15.6 million boxes. The white grapefruit forecast is raised 100,000 boxes and is now 4.1 million boxes, while the colored forecast is decreased 500,000 boxes, and is now 11.5 million boxes. The Row Count survey showed over 99 percent of the white grapefruit rows and over 98 percent of the colored grapefruit rows have been harvested.

All Tangerines 2.95 Million Boxes

The forecast of all tangerine production is unchanged at 2.95 million boxes. The early varieties (Fallglo and Sunburst) at 1.75 million boxes are finished for the season and the Honey variety is unchanged at 1.2 million boxes. The Row Count survey showed 96 percent of the Honey tangerine rows have been harvested.

Tangelos 880,000 Boxes

The forecast of tangelo production remains unchanged at 880,000 boxes, including an allocation of 100,000 boxes for non-certified use, and is 12 percent less than the 2012-2013 production. Tangelo harvest is complete for the season.

FCOJ Yield 1.58 Gallons per Box

The projection for frozen concentrated orange juice (FCOJ) is lowered to 1.58 gallons per box of 42° Brix concentrate. The projection for Valencia oranges is now 1.64 gallons per box, reduced from 1.69 gallons per box. The final yield for non-Valencia oranges is 1.521318 gallons per box, as reported by the Florida Department of Citrus (FDOC) in Report No. 23. Last season's final yield for all oranges was 1.587680 gallons per box, 1.508465 gallons per box for non-Valencia oranges and 1.692050 for Valencia oranges.

Weather

Weather stations in the citrus growing areas reported afternoon temperatures ranging the mid 80s to mid 90s. Rainfall was sporadic, varying from very light earlier in the month to somewhat heavy toward the end of the month. Drought measurements as per the U.S. Drought Monitor, last updated April 29, 2014, indicate that the citrus producing region remains completely drought free.

Flatwoods Citrus

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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