UF IFAS Extension UNIVERSITY of FLORIDA
An Equal Opportunity Institution

Berry Vegetable Times

Volume 16 Number 2 Summer 2016

SOLUTIONS

Contents

2016 Calendar of Events

Hillsborough County Extension Office Pesticide License Testing. 5339 CR 579, Seffner. Dates vary so go to http://hillsborough.ifas.ufl.edu/prohort/pesticide_licenses/index.shtml for dates and how to register for testing.

Sept. 6 Tomato Food Safety Workshop. Ritz-Carlton Hotel, Naples FL. Resister at www.floridatomatoes.org.

Sept. 7 Florida Tomato Institute, Ritz-Carlton Hotel, Naples FL. 9-4.

Nov. 2 Ag Expo at GCREC. Find all the details at www.floridaagexpo.com.

Nov. 30 Produce Safety Rule Training for growers. GCREC. Tentative. Look for further information to come.

From Your Agent…It Sure is Hot Out There!

Every summer it seems hotter than the last one and boy is that true this year! The weather has been brutal- and summer just started; think what it will be like when you go back to work in August. If you are going to be outside in this heat -whether for fun or work, you need to be extra cautious to protect your health. You need to know the signs of heat stress and what emergency steps to take if you or someone else gets too hot. Also remember as part of Worker Protection Standard (WPS) training, you are to educate your workers about heat stress.

Heat stress is when there is a buildup of body heat that is more than you can tolerate. It can be from body heat caused by our muscles as we work or just from the hot temperature of the environment. Heat leaves our body by air on our skin, evaporation by perspiration, exhaling hot air or touching a cool object. High humidity slows down evaporation so it is harder to cool ourselves which we know is a big issue here in Florida. Also as we age, the ability to sweat decreases so you need to be more careful about heat stress. Since we start fumigating and laying plastic in August heat stress is a major concern for ourselves and our workers. Heat illness also can impair our judgement and coordination which can lead to other accidents and injuries.

When you are out in the heat, protect yourself with sunscreen and a wide-brimmed hat. Wear sunglasses that block 95% of UV (ultraviolet) rays to protect your eyes which can be damaged from the sun. Wear light, loose-fitting breathable clothes. Be sure to drink lots of water and don't wait until you feel thirsty. The recommendation is to drink 2-4 cups of water every hour while working outside. Don't drink alcohol or sugary drinks as they can dehydrate you. Also make sure your family and workers are drinking enough. If at all possible schedule your activities outside in the early morning or evening hours when it is somewhat cooler. A word of caution especially if you are out for a long period of the day is to be careful that you do not drink so much water that you dilute your blood potassium level. If it is too low you can have muscle weakness, cramping, trouble breathing and cardiac arrest. It is important to maintain your body's mineral balance and this is where drinking sports drinks that contain electrolytes are a big help.

On the following page you'll find a chart that describes the symptoms of heat stress and the first aid treatment. You can print it out and post near central posting so if there is a heat related problem workers will know where to look for the first aid treatment. Also you should not only watch how you are feeling but also watch your workers and have them watch each other. If you get too hot you may not notice yourself that you are in trouble. The important thing is do not delay treatment!!!!!

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A University of Florida/IFAS and Florida Cooperative Extension Service Newsletter
Alicia Whidden, Editor, Hillsborough County Extension Service, 5339 CR 579, Seffner, FL 33584 (813) 744-5519

Jack Rechcigl, Center Director and Christine Cooley, Layout and Design
Gulf Coast Research & Education Center, 14625 County Road 672, Wimauma, FL 33598 (813) 634-0000 http://gcrec.ifas.ufl.edu

Illness	Description	Symptoms	Treatment
Mild heat	Results from decreased flow of blood to the brain; may lead to heat exhaustion or heat stroke.	Dizziness, fatigue or irritability; reduced ability to concentrate.	Move person to shaded stress area for half hour or more; loosen or remove clothing; give water to drink.
Heat Cramps	Painful muscle spasms (stomach, arm or leg) during or after physical exertion in heat.	Heavy sweating; thirst; muscle spasms.	Move person to shaded area to rest; loosen clothing; give cool fluids to drink, preferably containing electrolytes.
Heat Exhaustion	Acute reaction; results from decreased flow of blood to the brain and within circulatory system; may lead to heat stroke.	Heavy sweating; pale, clammy skin; increased pulse and breathing; weakness; dizziness/ fainting; excessive thirst.	Immediately move person to cool shaded area and call 911; loosen or remove clothing & splash cold water on body; have person rest lying down; if conscious, give person water to drink (frequently & in small amounts); do not give salt.
Heat Stroke	Life-threatening medical emergency; results from inability of body to cool itself & decreased flow of blood to the brain & other body organs.	Excessively high body temperature; confusion; irrational behavior; slowed down or no sweating; rapid breathing & pulse (if conscious); possible convulsions &/or coma.	Call 911 immediately; move person to shaded area & remove outer clothing; cover with thin wet towels or wrap in wet sheet, then pour on water & fan vigorously; if conscious, give water to drink (frequently &in small amounts) do not give salt.

(Table excerpted from: Mulhern, Barbara. "If You Can't Stand the Heat Get Out of the Greenhouse", Ornamental Outlook, May 2005.)

Just a note: The hottest temperature ever recorded in Florida was 109 degrees on June 29, 1931 in Monticello.

Alicia Whidden
Hillsborough County Extension Service

For more information on Heat Stress for yourself, your workers, family, and pets you can visit:

http://solutionsforyourlife.ufl.edu/hot_topics/agriculture/heat_stress.shtml

The Q Biotype of Bemisia tabaci in Florida

Dr. Hugh Smith, Assistant Professor, UF/IFAS Gulf Coast REC, Dr. Lance Osborne, Professor, UF/IFAS Mid-Florida REC, Dr. Cindy McKenzie, Research Entomologist, USAD ARS Ft. Pierce

The silverleaf whitefly is one of the most important pests of horticultural, ornamental and agronomic crops in Florida. It is known as the cotton, sweetpotato, and tobacco whitefly in other parts of the world. The species, Bemisia tabaci, has been recorded in Florida since 1900, but rarely caused crop damage until 1986, when the B biotype of B. tabaci became established in the state and displaced the A biotype. Different biotypes of whitefly are morphologically indistinguishable – they look exactly the same. Biotypes can only be separated by genetic analysis. While all biotypes of Bemisia tabaci look the same, they distinguish themselves primarily by their pest status. Unlike the A biotype that it displaced in Florida, the B biotype can transmit over 150 viruses and induce crop disorders, including irregular ripening of tomato and silverleafing of squash, which is the origin of the common name, silverleaf whitefly. The B biotype is also characterized by the tendency to develop resistance to many insecticide modes of action.

The Q biotype of Bemisia tabaci has the reputation of being even more difficult to control with insecticides than the B biotype. Specifically, the Q biotype is characterized by resistance to neonicotinoid insecticides (Admire, Platinum, Venom, others) and to the growth regulator pyriproxifen, which is the active ingredient in Knack insecticide. The Q biotype was first detected in Florida in 2005, and it has been picked up in whitefly surveys sporadically since then. Until April 2016, the Q biotype of whitefly in Florida was only collected from ornamental plants in commercial greenhouses on material imported from overseas. In April, the Q biotype was identified from whiteflies that were established on hibiscus in residential landscaping in three communities in Palm Beach County. This is the first time the Q biotype has been found on plants established in the landscape as opposed to imported plants in pots in commercial greenhouses. The McKenzie lab at the USDA-ARS Fort Pierce has analyzed several dozen whitefly samples from ornamental and vegetable crops since Q was detected in Palm Beach County in April. At the time of writing, all whiteflies tested from vegetable crops have been confirmed as biotype B except for one sample from eggplant in a Hillsborough County retail outlet. From late 2013 through early 2015, nineteen populations of whiteflies were collected from horticultural fields, primarily tomato, in south Florida, and all were confirmed to be biotype B. Presently, there is no evidence that the Q biotype has become established in horticultural field production in Florida.

In some countries where the Q biotype has been detected, such as Israel and Spain, it has tended to dominate in protected agriculture. In China however, the Q biotype was introduced on poinsettias (just as in Florida) and eventually established in field crops. This may be due to differences between “subclades” Q1 and Q2 within the Q biotype, both of which have been detected in the US. Growers, crop protection professionals and UF IFAS extension personnel can help us monitor the biotype status of Bemisia tabaci in field and greenhouse crops by submitting samples to Hugh Smith (813 633 4124; hughasmith@ufl.edu). Please contact Hugh for information on how to submit a sample.

Broad Mites and a Few Other Pests in Blackberries

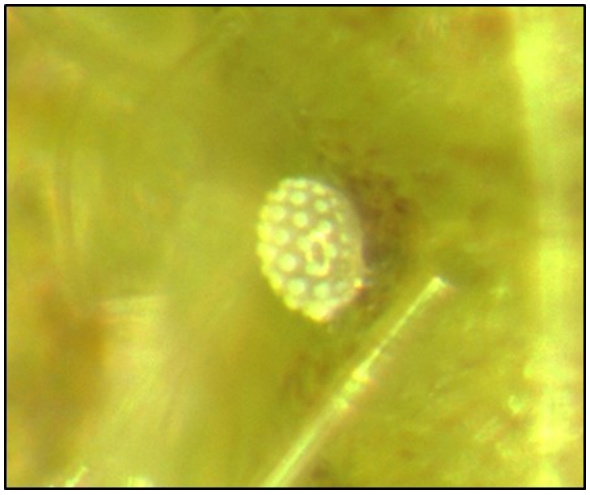
Dr. Justin Renkema, Assistant Professor, UF/IFAS Gulf Coast REC

During May and June, 5 blackberry fields in central Florida were visited every few weeks to scout for insect and mite pests. Four fields were in Hillsborough County and one in Sumter County. Blackberry plantings at Gulf Coast Research and Education Center (GCREC) were also scouted.

Broad mites – were found at one site in primocane blackberries (PrimeArk®). Broad mites have a wide host range in tropical areas, including many vegetables, fruit trees and ornamental species. Broad mites in blackberries is a recent occurrence, with reports in AR, CA, NC, SC, PA, IL, IN since 2007. Arkansas has been the "hot spot" for damage and research on management.

Broad mites are very small and live primarily on new, expanding leaves. Adults are about 0.2 mm or 1/125" long, and can be seen using a 20X hand lens. Adults are football-shaped, whitish to light yellow to amber colored, with a lighter stipe that runs down the length of the body. Eggs are attached on leaves and appear to have scattered white tufts on the upper surface.

Adult broad mite



Broad mite egg

Broad mites cause the terminal leaves to become malformed, distorted and highly cupped. Leaves turn a brownish, coppery color. Fruit can also be affected, but no damage to fruit was seen in blackberries in Florida. Cupped leaves are evident at about 20 adult broad mites per leaflet. Populations can increase rapidly – at the visited site, few broad mites were observed on May 26, but by June 17 broad mites were numerous and damage was severe.

The only currently registered miticide for blackberries is Zeal (etoxazole). A 2ee recommendation for Agri-Mek SC (abamectin) has been obtained for broad mites in Florida and other affected states. In a trial in Arkansas, both products reduced broad mite numbers 7 days-after-application to zero or nearly zero. Research in Arkansas is also being conducted on the efficacy of Microthiol Dispress (micronized sulfur), JMS stylet oil, and releases of predatory mites. If feasible, affected branches should be pruned out, removed from the field and destroyed before a miticide application.

Broad mite damage on primocane blackberry – June 17, 2016
Another example on Page 5

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Broad mite damage on primocane blackberry – June 17, 2016

Flower beetle - Euphoria sepulcralis, a drab, black and white scarab beetle, was observed in 3 fields, and in relatively high numbers at one field. A few of the beetles were in flowers and covered in pollen, but most were feeding on ripe fruit. There are three beetles on the berry in the picture below, but on some berries we found 6 or 7 beetles. Ripe berries with beetles were mushy and unmarketable, and the beetle may also be responsible for destroying flowers resulting in no berry formation as seen in this picture.

Little is known about the biology or management of this beetle. It has a large host range and can be a corn and rose pest, as well as cause damage to mango and avocado in South Florida.

For more information see: http://entnemdept.ufl.edu/creatures/orn/beetles/Euphoria_sepulcralis.htm

Flower beetles on blackberry

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Cane borer - At one field and at GCREC, we observed a few girdled canes, with new shoots that were wilting and dying. This damage is likely caused by raspberry cane borer - Oberea bimaculata or O. affinis - a long-horned beetle, although we have not observed beetles or been able to rear them from affected canes. The adult female beetle creates the two girdles and inserts an egg in the stem between the girdles. The oviposition wound is a D-shaped hole adjacent to one of the girdles.

Cane borer damage on blackberry shoots

Cane borer populations can be kept in check by removing the stem an inch below the bottom girdle and burning or destroying it. Chemical controls are not necessary.

Leafrollers – were common in most fields and were likely strawberry leafroller, Ancylis comptana. Rolled leaves with webbing can be peeled apart to reveal a small caterpillar or worm. The caterpillar is greenish-yellow with a dark colored head. Sometimes the caterpillar has pupated and the adult moth may have emerged - particularly if the entire rolled leaf is brown and dry.

Removing and destroying affected leaves will help reduce leafroller populations. As in strawberries, chemical control is infrequently recommended as plants can withstand some damage without affecting growth or yields.

For more information see: http://entnemdept.ufl.edu/creatures/FRUIT/strawberry_leafroller.htm

Broadleaf and Grass Weed Control in Strawberry using Preemergence Herbicides

Dr. Nathan S. Boyd, Associate Professor, UF/IFAS Gulf Coast

Broadleaf and grassy weeds are a serious issue in many strawberry fields. The extent of the problem and the types of weeds present vary with the soil type, topography, weather, management practices, and field history. For example, growers with effective fallow programs generally have far fewer weeds during the strawberry season then those that do not adequately manage their fields during the fallow perriod. In recent years strawberry growers report increased issues with weeds largely due to the loss of methyl bromide. The majority of growers now fumigate with combinations of chloropicrin and 1,3-dichloropropene but weed control with these products tends to be weak. Dimethyl disulfide (Paladin) is another option that can effectively control nutsedge but is generally weak on broadleaf weeds and annual grasses. Metam potassium and metam sodium tend to have more activity on broadleaf weeds and grasses than any of the other products mentioned above.

I recommend the use of preemergence herbicides in fields where weeds are an issue. These herbicides are applied following fumigation immediately prior to laying the plastic mulch. Read the herbicide label for

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application instructions and recommendations. The three most common products used in strawberry include flumioxazin (Chateau), napropamide (Devrinol), and oxyfluorfen (Goal). I have listed trade names as examples but there are many different products with the same active ingredient. Products such as Chateau and Goal are more effective if the soil is not disturbed following application. No herbicide will control all weed species. Table 1 summarizes the general effectiveness of three herbicides on some common weed species. Table 2 lists the effectiveness of the same herbicides on common grasses.

Table 1. The effectiveness of some common strawberry herbicides on common broadleaf weeds of strawberry fields. The ratings are largely based on the experience of weed scientists at the University of Florida (Nathan Boyd, Peter Dittmar, and William Stall) as well as research conducted throughout the state.

	Chateau	Devrinol	Goal
Black Medic	Suppression	Poor	Poor
Carolina Geranium	Suppression	Poor	Poor
Common Purslane	Excellent	Good	Excellent
Common Ragweed	Excellent	Good	Good
Eclipta	Good	Poor	Excellent
Evening Primrose	Excellent	Good	Excellent
Florida Pusley	Good	Good	Good

Table 2. The effectiveness of some common strawberry herbicides on common grass weeds of strawberry fields. The ratings are largely based on the experience of weed scientists at the University of Florida (Nathan Boyd, Peter Dittmar, and William Stall) as well as research conducted throughout the state.

	Chateau	Devrinol	Goal
Barnyardgrass	Good	Excellent	Excellent
Broadleaf signalgrass	unknown	Excellent	Fair
Crabgrass	Good	Excellent	Fair
Goosegrass	Good	Excellent	Fair
Panicum spp	Good	Excellent	Poor

In some cases a combination of herbicide products can be applied to increase the number of species controlled. This is recommended in fields with serious weed control problems. Of course, the herbicide cost also plays a role in making any decision. I have listed an approximate price for the most common herbicides applied under the plastic in Table 3 but price will vary between years, dealers, trade names, etc.

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At best, the prices listed in table 3 can be used as a rough guide.

Table 3. Efficacy of some common herbicide products and estimated cost.

Herbicide	Spectrum	Estimated $/acre
Chateau	Excellent Broadleaf Good Grass	$17
Goal	Excellent Broadleaf Fair Grass	$10
Devrinol	Fair-Good on Broadleaf Excellent on Grass	$96
Goal + Devrinol	Excellent on Broadleaf Excellent on Grass	$106

Herbicide selection should be made based on the following information:

- Type and number of weeds historically present in the field
- Crops that will be planted following strawberries
- Cover crops that will be planted following strawberries
- Herbicide products available at your local agrochemical dealer
- Herbicides applied in the past. When possible rotate active ingredients to slow the development of herbicide resistance.
- Cost

In summary, preemergence herbicides are an important weed management tool in strawberries. There are a limited number products registered for use and as such care must be taken to rotate active ingredients when possible. One potential approach is to use different herbicides during the fallow period then the ones you use during the cropping period. The three most common herbicides applied by growers in the state of Florida control different species and the best option will depend on the weeds present in your field. If you have any questions on herbicide use in strawberries contact Dr. Nathan Boyd located at the Gulf Coast Research and Education Center.

Artichoke: Introducing an Attractive Niche Crop to Florida

Dr. Shinsuke Agehara, Assistant Professor, UF/IFAS GCREC

Globe artichoke (*Cynara cardunculus* L.) belongs to a genus of thistle-like perennial plants in the sunflower family and is native to the Mediterranean region. Buds are harvested when they reach the maximum size but at an immature stage. The edible portions include the large fleshy base or receptacle, known as the "heart", as well as the base of each petal and the stem. Each plant can produce several large buds and retail price ranges from $1 to $5 per bud. Artichoke buds have exceptionally high nutritional value, and the antioxidant capacity ranks fourth out of more than 1000 food products and is the highest among many selected vegetable crops.

Although the production value of artichoke is higher than most major vegetable crops in Florida, California produces nearly 100% of all commercially grown artichokes in the U.S. The main challenge to grow artichoke in Florida is to overcome its chilling requirements. For example, two standard commercial cultivars in California, 'Imperial Star' and 'Green Globe Improved', require at least 250 and 500 cumulative hours below 50 °F for bud formation, respectively. Therefore, flowering must be artificially induced to

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produce artichokes in our climate.

One of the artificial treatments to induce flowering in artichoke is the use of ProGibb, which is a plant growth regulator of Valent U.S.A. Corporation. The active ingredient of ProGibb, gibberellic acid, can induce the expression of the same genes activated by cold treatment.

In the 2015-2016 winter season, we performed a field trial at the GCREC to test the effects of ProGibb on bud formation of artichoke plants grown in Florida. The cultivar used in this trial was 'Green Globe Improved'. Table 1 shows management practices used for the trial. Table 2 shows the timeline of key events in the trial.

Transplants were grown using a polystyrene tray with 128 inverted pyramid cells (Fig. 1). Plants grew well throughout the season without any major insect and disease problems (Fig. 2). When plants were treated with ProGibb, bud formation occurred on Feb. 8, 2016. The initial buds took 30 days to reach the maximum size, which weighed up to 576 g per bud and had the best quality (Fig. 3). Plants started to produce multiple buds on off-shoots after harvesting the initial buds on the main stems. No bud formation was observed on the untreated plants, suggesting that the treatment of ProGibb is an effective strategy to induce flowering in artichoke plants grown in Florida. The total number of marketable buds was 2.6 per plant. We were able to demonstrate that artichoke production is feasible in our climate, but our yield was not at the commercial level in California. For this coming season, we will continue this project to optimize the application rate of ProGibb and evaluate other cultivars that may be more suitable to our climate.

Table 1. Management practices used for the 2015-2016 artichoke field trial.

Management	Description
Bed preparation	Pic-Clor 60 at 300 lb/acre Black VIF plastic mulch Two drip tapes per bed (0.25 gal/h at 12" spacing)
Fertilization	Pre-plant soil incorporation at 50N–17P2O5–67K2O5 lb/acre Drip injection at 1N–0.13P2O5–0.5K2O5 lb/acre/d from 12/1/15 to 2/1/16 Drip injection at 2N–0.26P2O5–1K2O5 lb/acre/d from 2/2/16 to 5/5/16
Transplanting	53-d-old transplants 60" row spacing and 36" in-row spacing

Table 2. Timeline of events in the 2015-2016 artichoke field trial.

Date	Event
11/10/15	Transplanting
12/23/15	1st ProGibb spray at 20 ppm gibberellic acid
01/13/16	2nd ProGibb spray at 20 ppm gibberellic acid
02/08/16	Bud initiation
03/09/16	1st harvest
05/05/16	Final (14th) harvest

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Fig. 1. Artichoke transplants used in the 2015-2016 field trial.

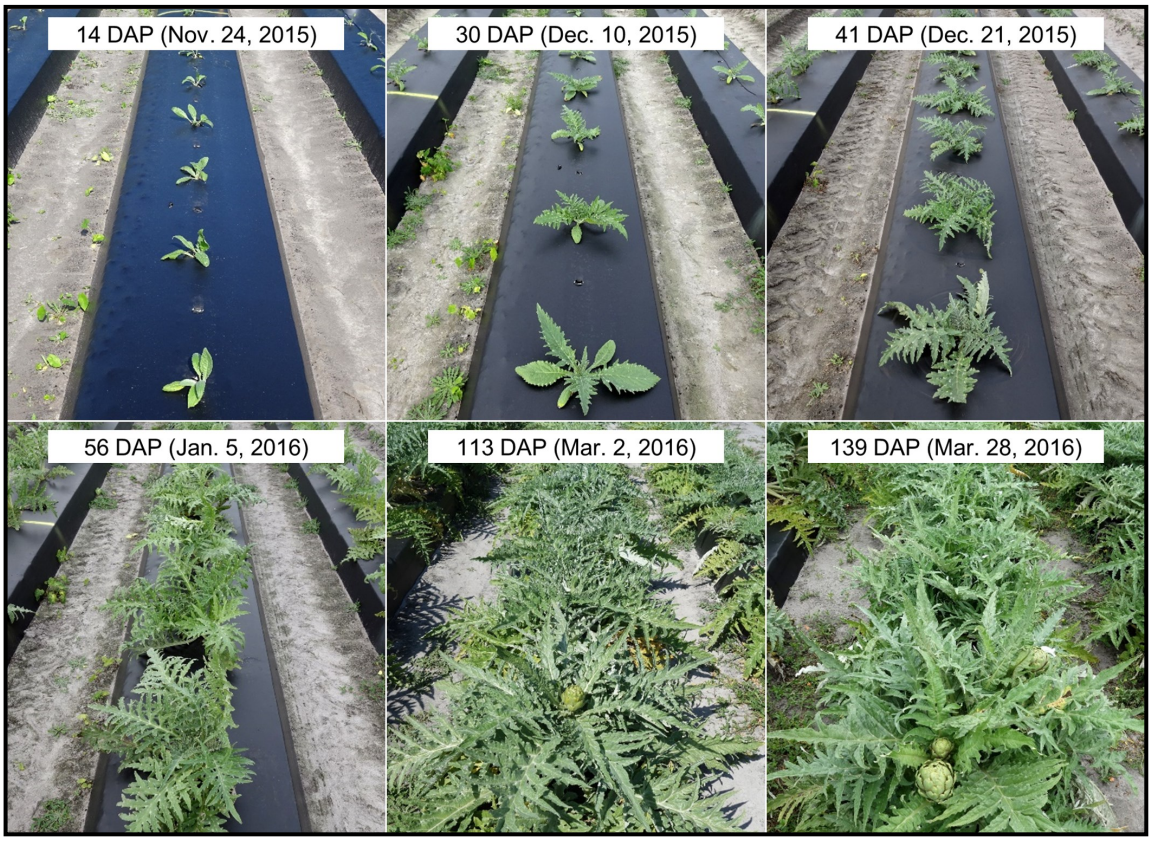


Fig. 2. Plant growth and bud development of artichoke plants in the 2015-2016 field trial. DAP = days after planting.

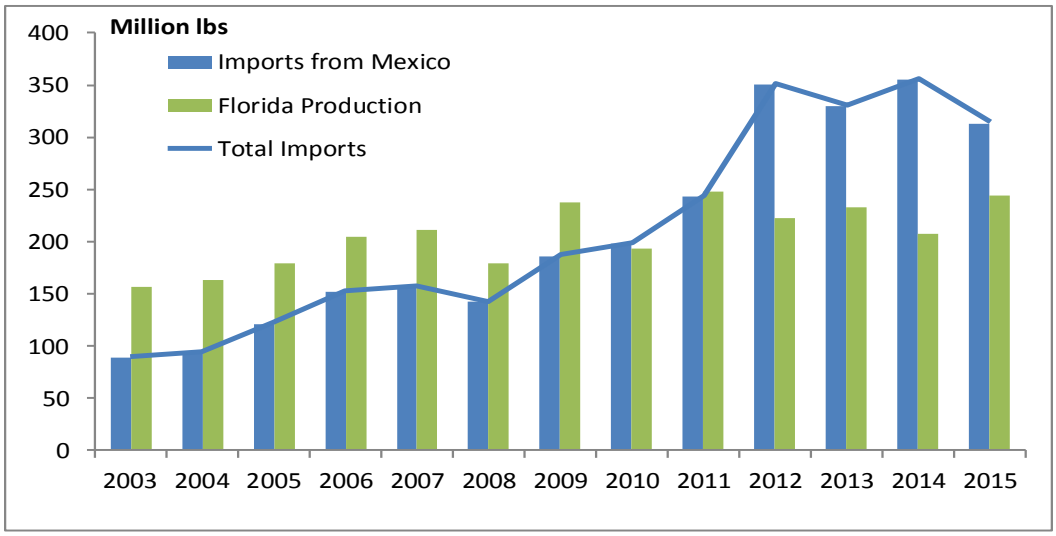
Fig 3. Artichoke buds at the marketable size in the 2015-2016 field trial.

Production, Trade, and the Impact of Mexican Competition on Florida Strawberry Industry

Dr. Zhengfei Guan, Assistant Professor, UF/IFA Gulf Coast REC; Dr. Dong Hee Suh, PostDoc Researcher, UF/IFAS Gulf Coast REC, Dr. P. Hayk Khatchatryan, Assistant Professor, Mid-Florida REC, Dr. Feng Wu, Research Assistant Scientist, UF/IFAS Gulf Coast REC

The United States is the largest producer of strawberries in the world. California and Florida account for about 98% of U.S. total production. According to the National Agricultural Statistical Service (NASS), California produced nearly 2.8 billion lbs of strawberries from 41,000 acres in 2015 while Florida produced approximately 240 million lbs from 11,000 acres. Florida produces mainly fresh strawberries in the winter season, while California produces both fresh and frozen strawberries and 20% of its production is winter strawberries from the southern region.

Fig. 1. Florida Production and Imports from Mexico



Mexico is another major supplier of strawberries in the U.S. market. Imported strawberries from Mexico account for about 95% of total imported strawberries in the U.S. market. In recent years the U.S. strawberry industry has become increasingly concerned about the competition from Mexico and the future of the domestic industry. According to the Foreign Agricultural Service (FAS), imports of fresh strawberries from Mexico were 88 million lbs in 2003 but they reached a record of 350 million lbs by 2012, approximately four times higher than a decade ago (Fig. 1). Mexican production occurs mainly in the winter season and is the direct competitor of Florida. In 2013, about 300 million lbs were imported from Mexico between November and April, while the total Florida production was only 233 million lbs during that period. Imports from Mexico has depressed market price and squeezed the market share and profit margin of Florida strawberries. NASS statistics show that Florida production value fell dramatically, from 370 million dollars in 2010 to 201 million dollars in 2012. The *average* market share of Florida over 2010-2014 has decreased to 39% during the winter season (December through March).

Mexican export to the U.S. will continue to increase, which is expected to further reduce the market share of domestic strawberries. The expansion of the Mexican strawberry industry is the result of technology adoption and government support. One of the critical technologies is the use of high tunnels. High tunnels extend the production season and increase crop yield. More importantly, strawberries grown under high tunnels better meet the quality requirements of export to the US. In recent years, Mexican strawberry yield showed an increasing trend with the wide adoption of high tunnels. In 2011, the average yield per acre in Mexico was 30,000 lbs per acre, and it increased to 41,000 lbs per acre in 2014. In contrast, Florida produced only an average of 25,000 lbs per acre during the same period.

With the expansion of acreage, Mexican production has been at a record high in the last three years

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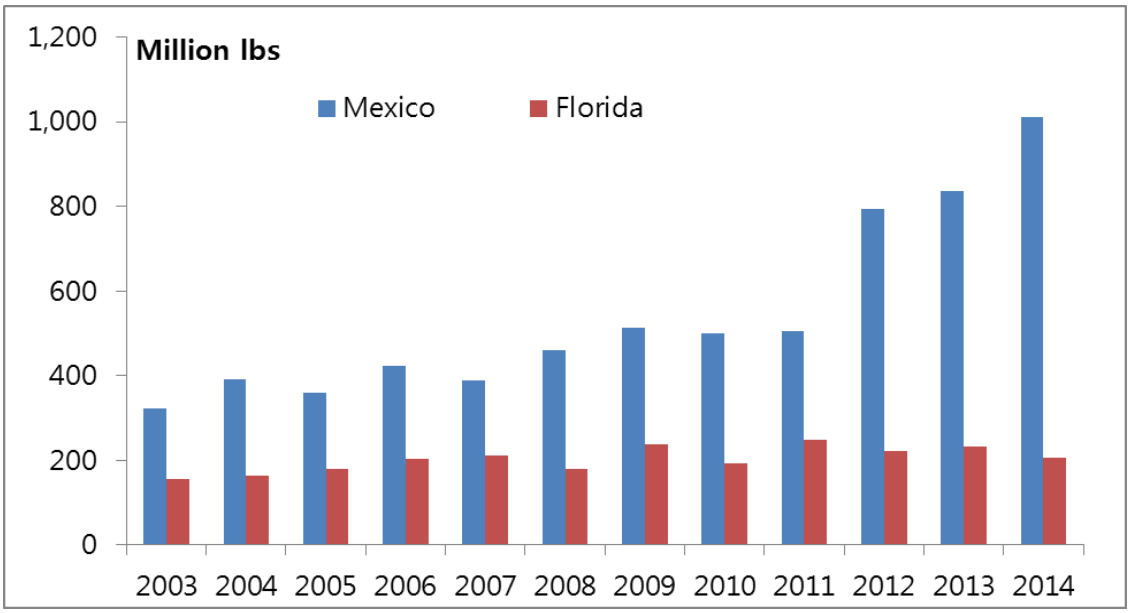
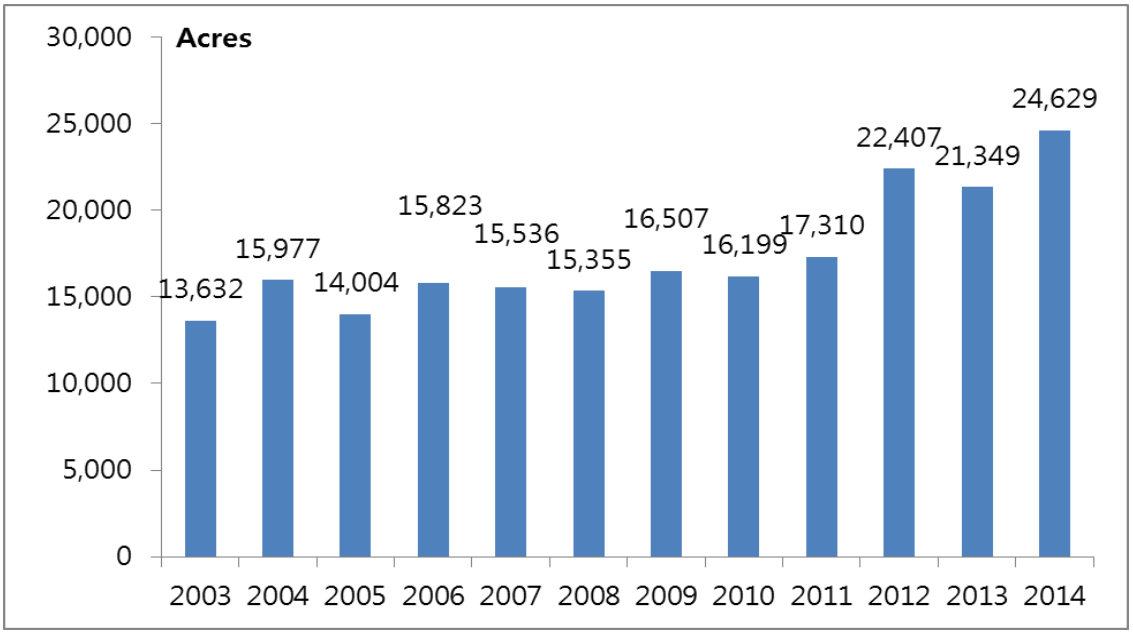
(Fig. 2). Although only about a third of Mexican production was sold to the fresh export market, the increase in export to the U.S. was dramatic compared to that of a few years ago. The increase may continue in the coming years if Mexican strawberry acreage further rises. Mexican strawberry acreage was at 22,407 acres in 2012, up 30% from 2011, and increased again to 24,629 acres in 2014 (Fig. 3). Mexico was expecting to double its production capacity in the coming years as promoted by the Mexican government.

Fig. 2. Mexican and Florida Strawberry Productions



Note: Mexico production includes fresh (1/3) and frozen (2/3).

Fig. 3. Mexican Strawberry Acreage



Source: SAGARPA, Mexico

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The increasing competition from Mexico has prompted an important question: What are the effects of imports from Mexico on Florida strawberry industry? An analysis by Suh, Guan and Katchatryan (2015) using data from December through March between 2010 and 2014 showed that a 1-million-lb increase in Mexican weekly shipments would cause the Florida price to drop by 47 cents per flat. To put in perspective, Florida average weekly shipment over the season is about 12 million pounds.

The effects of imports were analyzed in different scenarios. When Mexican shipments increase by 25%, 50%, and 100%, the total loss in the market value of Florida shipments will approximately decrease by $20, $40, and $80 million due to drops in market prices. In fact, in the 100% increase scenario, the market price will drop below harvest and marketing costs in the peak season, which will cause Florida growers to stop harvesting in the 4th week of February, shortening Florida season by 5 weeks. Accounting for this additional revenue loss, the total loss in Florida strawberry revenue will amount to $145 million, which means the revenue of the Florida strawberry industry will be roughly cut by half. The per-acre profit of an average farm producing 3,000 flat per acre will roughly decrease by $2,500, $5,000, and $9,000 when Mexican shipments increase by 25% and 50%, and 100%, respectively. Given the fact that the current profit margin is already very low (if positive at all), losing these additional amounts would pose a serious challenge to the viability of the industry, particularly in the 3rd scenario when imports from Mexico are doubled.

The scenario analysis above is based on the assumption that everything else is *held constant*; the only change is the amount of imports. We did not consider potential changes that might occur over time, which is exactly where the Florida industry should work on, for example, developing new technologies to reduce cost, new varieties to differentiate, and new market to accommodate increasing supplies. Changes in these areas could affect how the industry in Florida and Mexico evolves over time in this competitive, interactive game. There are potentially also factors on the Mexico side that will likely change the dynamics of the competition, for example, increase in labor costs in Mexico and the repercussion of low prices on the Mexican strawberry industry itself. The dynamic co-evolution of the Mexican and Florida strawberry industry will be the subject for a more in-depth analysis.

UF/IFAS Gulf Coast Research and Education Center Welcomes Two New Faculty Members

GCREC administration is pleased to announce the addition of two new faculty members, both of which started their individual programs this month. Dr. Johan Desaeger is the center's new nematologist. Originally from Belgium, Dr. Desaeger has extensive experience with the nematology problem here in Florida. He was currently employed as a principal investigator for nematodes with DuPont. While in their employ, Dr. Desaeger created new lab and greenhouse assays as well as set up a nematode field program. He is also credited with developing a new nematicide which is now in full development. His new program will be instrumental for the strawberry industry in central Florida.

The Center would also like to introduce our new Tomato Breeder, Dr. Tong Geon Lee, who has taken on Dr. Jay Scott's program after his retirement. Dr. Lee was working as a postdoc research associate in the Department of Crop Science, University of Illinois at Urbana-Champaign. His research specializations are genetics and genomic analysis of plant traits. He recently developed a new type of marker-assisted selection to assist in selecting desirable copy number variants in crop breeding populations. Originally from Korea, Dr. Lee obtained his Ph.D. in Plant Biotechnology and Genetic Engineering.

Congratulations to them both on the beginning of long careers with the University of Florida.