The Fruit Growers of Southwest Florida

NOVEMBER 2019

The Speaker at the Bonita Springs Tropical Fruit Club Meeting on November 12th is Cecelia Morales. She is the organic garden manager at Shangri-La Springs. In her role, Morales is responsible for managing the care and maintenance of Shangri-La Springs' organic garden, which supports the property's farm-to-table restaurant, Harvest & Wisdom.

A Southwest Florida native, Morales brings a wealth of organic and sustainable gardening knowledge to her new role. Prior to joining Shangri-La Springs, Morales was a nursery caretaker and plant retailer at FruitScapes Nursery in Bokeelia, where she cultivated and maintained a variety of local and imported fruits and plants. While attending Florida Gulf Coast University (FGCU), Morales dedicated more than three years to the university's Food Forest, a student-run sustainable permaculture garden, where she assisted in food cultivation and served as the service-learning coordinator.

Morales earned a Bachelor of Science degree in elementary education from FGCU and a certification in permaculture design.

Bonita Springs Tropical Fruit Club Meeting: Tuesday, November 12th.
Tasting Table Begins at 6:15 pm. Meeting Starts at 7:00 pm.
Revive /Paradise Wellness, 28410 Bonita Crossings Blvd. #11,
Bonita Springs, FL 34135

The speaker at the Tuesday, November 19 meeting of the Collier Fruit Gowers will be Dr. Jonathan Crane, profession and associate director, Department of Horticultural Sciences, University of Florida, Tropical Research and Education Center (TREC), Homestead.

Dr. Crane is the administer of the Tropical Fruit Crop management Program. This program strives to provide current information and educational programs for the Florida commercial producers, both undergraduate and graduate students, and urban residents with an interest in tropical fruit crops. This is accomplished through the statewide Extension Service, applied research, and graduate teaching programs.

Dr. Crane will provide an update on the ongoing research projects being conducted at TREC and insight into how local southwest fruit growers can participate.

Collier Fruit Growers Meeting: TUESDAY, November 19th.
The tasting table starts at 7:00 pm. The meeting starts at 7:30 pm
at the Tree of Life Church, Life Center,
2132 Shadowlawn Dr., Naples, FL

RECIPE OF THE MONTH:

This Caribbean inspired curry has a subtle, mild sweet flavor. I found this recipe on www.foodandwine.com. Serve with rice for an easy yet delicious meal.

recipe:

Chicken with Banana Curry Sauce

2 large bananas, cut in pieces
4 tsp lime juice
2 tbsp curry powder
½ tsp black pepper, freshly ground
2 tsp ground coriander
1¼ tsp salt
1 tsp dry mustard
¾ cup water, more if needed
3 tbsp butter
4 bone-in chicken breasts (2 ¼ lb) skin removed
Grated lime zest
1 tbsp fresh parsley

Heat the oven to 450°. In a food processor or blender, puree the bananas, curry powder, coriander, dry mustard, butter, lime zest, lime juice, salt, pepper, and 1/4 cup of the water.

Make a few deep cuts in each chicken breast and put the breasts in a roasting pan. Pour the curry sauce over the chicken, making sure the sauce gets into the cuts. Roast in the bottom third of the oven until the chicken is just done, about 20 minutes.

Remove the roasting pan from the oven and remove the chicken breasts from the pan. There should be plenty of thick sauce in the bottom of the pan. Set the pan over moderate heat and whisk in the remaining 1/2 cup water. Continue to whisk until the sauce is heated through, adding more water if you want a thinner sauce. Serve the chicken breasts with the sauce over them. Sprinkle with parsley, if you wish.

Serves 4.

Rare Fruit Council International – Memorable Speakers

By Crafton Clift

In the 1970's and 80's the monthly programs at the Miami RFCI were transcribed and mailed by newsletter to Australia, the Americas and Israel. Whenever we knew an international visitor was coming to Miami, we would ask them to speak at our meetings. The following are speakers I remember:

Ecuador, Joy Horton (later Mrs. Curtis Hoffman)

Joy came to the meeting bearing lots of pineapple cooked with cubes of babaco and sugar. Babaco is a papaya (Carica) hybrid that is sterile and very sour, but, oh, so delicious cooked with sugar. Joy showed a slide of foot long leafless babaco stakes stuck at a slight angle in about an acre of loose, airy, volcanic ash. Papaya can't root from cuttings, I thought, but the next slide showed them leafed out and growing. Babaco lives through south Florida winters and dies in our hot summers. Trying to move plants up or down the mountain from their adaptive zone is as difficult as trying to grow mangos in Michigan!

Australia, Alan Carle

An US expatriate wooed to Australia in the era they needed young (white) men. On Alan's annual trip to America, he goes first to collect achachairu (Garcinia) seeds from the Amazon, second to Guatemala for green sapote, and then to Florida to see his mom.'

After a slide show at Miami RFCI, I asked Alan, "You said those 10-feet tall jackfruit with fruits were only two years old. Is that true? It takes ours 10 -12 years to bear."

Alan confirmed it was true and sent us seeds of the precocious jackfruit. Skip forward 25 years. I am sitting in Dr. Richard Campbell's nursey at Fairchild Garden, "Crafton, how old do you think those jackfruits are?" They were a meter tall.

(Planted one seed per pot – they don't bareroot easily.) "I see male flowers already; I would guess two years." "They are not a year old yet. They are from last season's fruit."

Australia – Dr Rodney Catton, Chiropractor

Dr Catton hired a grafting expert from the Philippines to come to Australia and live with him a year to teach him how to graft. The first thing the grafter did was build a shed where he put all new grafts out of the rain for a couple of weeks.

Costa Rica – Dr. Jorgé Leon, Director of CATIE, Turrialba

Speaking without slides, he said the chocolate industry should have been based on *Theobroma grandiflora* (cupuassa), but since it started with *T. cocoa*., the larger fruit was not permitted in coco countries for fear of transmitting disease.

Grafting Abiu

(Use Chripophyllum not Pouteria), by Crafton Clift

The famous horticulturist, Dr. Coronell, from the Philippines went to Australia and was impressed by their abius and brought seeds back to the Philippines. He wanted to multiply them by grafting and thought eggfruit (*Pouteria campechiana*) would be a good rootstock for abiu (*Pouteria caimito*) but found it didn't work.

Meantime , in Miami, the author was so frustrated at not getting abiu to graft onto eggfruit root, that I planted a seed of eggfruit and a seed of the abiu side by side in the same pot (20 replications), knowing that germinating seedlings are easiest to graft. When they germinated, I approach grafted. I was surprised that they showed no affinity for each other.

Miami Rare Fruit Council member, Fred Guzzi, observed that the flesh of the abiu is gelatinous like caimito, not pastey like eggfruit. He had a very large, sweet abiu seedling that he grafted onto *Chrysophyllum caimito* and it grew and produced well.

Growing Olives,

by Crafton Clift

When I came to Homestead, Florida in 1995, olives were a very common landscape plant. People liked their green-gray foliage and they were easy to root from cuttings. Then we had 23 -inches of rain in 24 hours. Olives are extremely drought tolerant but very sensitive to flooding. The 20-foot tall tree at Fairchild Garden and thousands of three and four-foot tall shrubbery trees were lost. None got enough chilling to flower.

ECHO in North Ft. Myers had an 'Arbequina' olive planted in the ground at the edge of the nursery where it got water every day. It got enough winter chill to produce flowers and fruit of various sizes. It was moved where it got summer rains and dry winters and it hasn't flowered since. Olives like Mediterranean climate of cool, wet winters and hot, dry summers. Manatee Rare Fruit Council in Sarasota has a seaside fruit planting with an 'Arbequina' that makes an occasional fruit.

'Arbquina' has never flowered for Rita O'Hearn or Dr. Steve Brady in Naples. The O'Hearn property in Golden Gate Estates has thousands of the olive relative 'Forestieria' and the Collier Fruit Growers gave the author a grant ten years ago to experiment with grafting. Grafts don't readily take, and none have lived more than a year.

Harvesting is the greatest expense with commercial olives. In California, a million-dollar harvester has to operate 24 hours a day to pay for itself and trees must be thin trimmed.

On the UCLA campus there are many small olive trees bent, heavy with black fruit and I wondered why passing students didn't grab hands full. Phew! Are they bitter before they have been brined!

BURDS' NEST OF INFORMATION THIS and THAT FOR NOVEMBER

PERSIMMONS
Take time to fertilize your persimmons with a balanced fertilizer, eg. preferably an organic 6-6-6 or 10-10-10. Fertilize even with fruit not yet harvested.
Remember, Persimmons lose their leaves this time of the year, keep applying the fertilizer LIGHTLY each month until the first new leaves start to push. STOP fertilizing for this reason: once the leaves are pushing. Fertilizer will send a signal for no fruit to set or the set fruit to abort.
TRIUMPH is our favorite. It has a good flavor and regular fruiting. There are many other good Persimmons, so test and try before you buy!

MORINGA - We are learning more and more about the health benefits of Moringa. It grows well here with the correct care. Propagation is by seed or cuttings or air layers. It can be grown successfully in a large pot or in the ground. Shape it as it grows, harvesting the top of the tree. Then it will bush out and the leaves, flowers, and pods easy to reach. How to benefit from Moringa is for another month's newsletter. There are many good books about Moringa available at the Library.

Moringa prospers in well drained, sandy soil. Moringa will stress and die in WET soil. Also, here, a young tree will probably die at 32F. A mature tree struggles at 28F.

The good news is that Moringa grows at a fast rate and needs to be pruned regularly. Fertilize it when it is young with a little Peters 20-20-20 (follow the instructions) and a light sprinkle of cotton seed meal which is the only nutrition needed when mature because Moringa thrives in acid conditions.

Krome Section

Proc. Fla. State Hort. Soc. 127:**–**. 2014.

The Introduction and Commercialization of West Indian Avocados to Fairchild Tropical Botanic Garden Living Collection, South Florida

Noris Ledesma*, Richard Campbell, and Todd Walton

Fairchild Tropical Botanic Garden, Coral Gables, FL

Additional index words. avocado, budwood, living collections

The avocado (*Persea americana* Miller) is an important fruit crop for subsistence farmers, small- and large-scale producers, throughout the tropics. In the lowlands of Tropical America, local selections of West Indian avocados dominate regional markets. These local West Indian avocado selections are often of superior fruit quality and adaptation to the climatic and edaphic conditions of the area. There has been little effort into the systematic identification, collection and maintenance of these West Indian avocado genetic resources from Tropical America. West Indian avocado selections have promise for South Florida as cultivars for plantation and estate agriculture. Working with local collaborators we have identified superior selections within localized areas of diversity, collected budwood and established a living collection at the Fairchild Farm Genetic Resource Center of Fairchild Tropical Botanic Gardens in South Florida. More than 200 different selections of West Indian Avocado were collected during 4 years. As a genetic resource, these selections hold promise for the improvement of disease resistance (e.g. Phytophthora root rot), fruit quality and productivity of avocado throughout Tropical America and the world. Evaluation of fruit and tree characteristics began in 2005 and we have now identified several green- and red-skinned cultivars with promise for commercial and landscape use in Florida and in Tropical America, Africa, and Asia.

West Indian avocados are prevalent throughout the lowlands of Tropical America. Naturalized seedlings occur in suitable habitats, particularly in association with human activity, along roadsides, or as remnant trees left after the clearing of forests. Our efforts have concentrated on superior selections of West Indian avocados in the patio gardens, and small orchards of Costa Rica, the Dominican Republic, Nicaragua, El Salvador, Guatemala, Panama and Puerto Rico.

Materials and Methods

The identification and location of these selections was based on past field experience with the avocado in Tropical America and the identification of localized centers of diversity. Travel reports, diaries, and the personal experiences of field horticulturists from Fairchild Tropical Botanic Garden, the United States Department of Agriculture (USDA) and private growers/collaborators offered a starting point in the location of superior genetic resources. However, to locate specific superior trees across such extensive regions we have relied most heavily on local collaborators within each region. Collaborators are a diverse group made up of local growers and hobbyists, university and non-governmental organization employees.

The expeditions for collecting started in 2002. By 2006, two-hundred individual selections were collected. Each individual selection was collected as budwood to maintain the clone. Veneer or cleft grafts were used on 'Waldin' rootstocks. The imported material was subjected to a one-year post-entry quarantine, following the USDA–APHIS regulations for entry into the United States. The new selections were planted as a single tree replicate in a permanent living collection at the Fairchild Farm Facility in South Florida and managed under a typical commercial avocado maintenance program for South Florida. The selections were screened for the presence of the sunblotch viroid at the time of establishment in the field. Trees have been under evaluation from 2005–13. Tree growth habit, fruit quality and productivity has been focus of the research, including fruit characteristics, size, color flesh, color skin, °Brix, and other desirable characteristics for commercial purposes were evaluated.

The introduction of improved selections or clones of new West Indian avocado and the identification of suitable economic potential and commercial development protocols for their propagation will allow for the development of these potential resources for the modern avocado industry.

Results and Discussion

Nearly a century ago in South Florida, West Indian avocados hybridized with Guatemalan varieties, giving rise to cultivars with superior commercial traits and allowed the Florida avocado industry to thrive until today. The avocado industry is an important fruit tree crop to the agricultural economy of Florida. Florida contributes 9% of the United States national production with 100% of West Indian avocados. There are growing concerns among Florida growers and industry representatives about the future of this important crop in the region.

For the current collecting effort in Tropical America we have targeted West Indian race avocado selections (Fig. 1). Selection criteria include heavy production, multiple cropping, superior fruit size and quality, a small seed and to a lesser extent potential as a rootstock.

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CONTINUE

Fig. 1. New selections of West Indian Avocado– 'Derna Fuente' (**A**); 'Yucatan 2' (**B**); 'Talapeno' (**C**); and 'Vainilla' (**D**).

Table 1 contains a summary of the superior avocado selections during the evaluations from 2005–13. Based on these evaluations we identified new selections with economic potential for modern production. Derna Fuentes', Butler', Catalina', Retalhuleu', and Utuado' are the most promising ones for commercial production. Don Bacho', Blass', 'Yucatan2', and 'Wilson Popenoe' have promise for niche markets due to the distinctive overall appearance and characteristics. Edwin' shows potential as a rootstock with salt and disease tolerance. It is necessary to continue with these evaluations for more years. A few of the selections have been collected from flooded soils near the sea. These selections may be of interest for root rot resistance, but no assessment was made of the presence of the root rot pathogen in the soils.

There are no other regional, national, or international collections that are conserving West Indian avocado for genetic diversity. The diversity of these new genetic resources will continue under evaluation to determine season of production and potential for improvement of disease resistance (e.g. Phytophthora root rot).

There is concern about a new disease of avocado called 'laurel wilt', which is vectored by the redbay ambrosia beetle. This disease has the potential to destroy the avocado industry in South Florida. Our avocado collection is located in the area of dispersion of the disease, but so far we have had no reports of symptoms. We will use stock from our collection to select for resistance to this devastating disease.

Table 1. Superior avocado selections and economic potential: evaluations from 2005–13.

Cultivar	Provenance	Fruit shape/ color	Fruit wt. (g)	Economic Potential
Blass	Costa Rica	Oval/black	650	Niche market: exceptional quality, unique appearance.
Butler	Puerto Rico	Oval/dark green	730	Modern production model: fresh fruit productive
Catalina	Cuba	Elongated/ light green	920	Modern production model: fresh fruit productive
Derna Fuentes	Nicaragua	Oval/black	910	Modern production model: fresh fruit highly productive, moderate peeling, smooth texture, deep yellow flesh
Don Bacho	Guatemala	Oval/black	356	Niche market: fruit is very attractive, easy to peel, smooth texture
Edwin	Costa Rica	Oblong/light green	620	Potential: rootstock/salt and disease tolerance
Retalhuleu	Guatemala	Oblong to elongated/ dark green	887	Modern production model: fresh fruit productive, smooth texture
Talpeño	El Salvador	Oval-oblong/ black greenish	610	Niche market: productive, easy to peel, no air cavity by the seed, smooth texture, light yellow
Utuado	Puerto Rico	Oval/dark green	560	Modern production model: fresh fruit highly productive
Vainilla	Guatemala	Oblong/dark red	610	Niche market: distinctive color
Wilson Popenoe	Puerto Rico	Oblong/ light yellow-green	1088	Niche market: easy to peel, some space in seed, very smooth texture, light yellow
Yucatan 2	Guatemala	Oval/lightgreen	1100	Niche market: long and slender seed shape, easy to peel, no air cavity by the seed, deep yellow flesh

Literature Cited

Richard J. Campbell and Noris Ledesma, Potential of New West Indian Avocado Selections for Tropical America, Pro. Interamer. Soc. Trop. Hort. 48:85–88. 2005.

Remember the date for: Collier Fruit Growers, Inc. **November 23rd Fruit Tree Sale**. No early birds before 9:00 am!

June 2020 Grafting Class with Dr. Noris Ledesma

Never too early: Plans were made at the October Meeting of the Collier Fruit Growers to have a Mango Grafting Class and Demonstration at the Naples Botanical Garden for their regularly schedule membership meeting on the third Tuesday evening in June 2020. For a small nominal fee class participants will receive three seedlings, scions and materials to practice their grafting skills. Dr. Ledesma will return from France to lead the class.

Lanternflies – Kill Them All!

From the epicenter where Lyme Disease carried by the 'deer tick' and stinkbugs were first introduced, Southeastern Pennsylvania (PA) is now plagued with the Lanternfly. Berks County is ground zero. With spotted wings, a red patch under the wings and body an inch long, swarms of Lanternflies are reportedly decimating large areas of all vegetation. The US Department of Agriculture (DA) has declared war on the Lanternfly. The fly originated in India, China and Vietnam and in the 2000's the insect spread across South Korea within three years. More recently it was brought to the US by international trade. Informational posters have been distributed that read, "Stop the Spotted Lanternfly," "Stop, Scape, Squish" and "Join the Battle, Beat the Bug." Twenty -two counties in Pennsylvania and New Jersey have been placed under quarantine – meaning trucks are required to follow specific shipping rules. Confirmed sightings have also been reported further south in Delaware and Virginia. Inventive ways to control the Lanternflies by individuals have included the use of vacuum cleaners or burning with a burst of flames. Both the USDA and Pennsylvania DA, along with Penn State University are studying the insect in an attempt to control its spread with pesticides. Hopefully, the northeasterly wind currents will slow the migration of the Lanternflies southward.

The information concerning the lanternfly was published in Wall Street Journal

GARDEN NOTES

Advisory: Virus in Mexican Tomatoes Causing Concern, USDA Action Needed

Oct 9, 2019

Tallahassee, Fla. – The Florida Department of Agriculture and Consumer Services (FDACS) is issuing an alert regarding a virus found in Mexican tomatoes imported into Florida and potentially other U.S. states. ToBRFV, the tomato brown rugose fruit virus, is a highly virulent virus that can cause severe fruit loss in tomatoes and peppers. Imported tomatoes potentially carrying ToBRFV pose a risk to the state's fresh-market tomato supply.

The ToBRFV tobamovirus was recently intercepted by FDACS inspectors in packaged Mexican tomatoes in Naples, Florida and Gainesville, Florida. These tomatoes have been destroyed.

Symptoms: Tomatoes and peppers are the two major hosts for this virus, which causes yellowing of leaf veins, and yellow spots, brown rugose (wrinkled) patches, and necrotic (dead) lesions on tomato fruit. Symptoms in fruit develop within 12 to 18 days of infection.

Transmission: The ToBRFV virus can be easily transmitted by contaminated tools, hands, clothing, soil, and directly plant-to-plant, as the virus as highly stable. The virus may also be spread by pollinators like honeybees and bumblebees, which commonly pollinate tomatoes. The genetic resistance in tomatoes that protects against many tobamoviruses is not effective against ToBRFV.

Impacts: There are no known human health impacts from ToBRFV. However, the virus can cause 30-70% loss of tomato yield on plants, which may severely disrupt the domestic tomato industry. The virus may also make infected fruit less desirable to consumers, a concern for grocery retailers.

Prevention: Once the ToBRFV virus is introduced in an area, control measures are very limited. Prevention mainly relies on destroying infected plants and following strict decontamination measures for workers, such as sanitizing tools, frequent handwashing, and cleaning boots before entering greenhouses.

For Consumers: Tomatoes showing symptoms of ToBRFV infection are still safe for human consumption but may appear less attractive than other tomatoes. The virus does not impact human health. Consumers are encouraged to select foods bearing the "Fresh From Florida" logo, which have been grown in Florida, not imported.

For Retailers: Grocers and retailers who suspect tomatoes in their inventories with ToBRFV infection should report the products to the Division of Plant Industry Helpline at 1-888-397-1517 or DPIHelpline@FDACS.gov.

"For the past six months, our inspectors have been watching vigilantly for the ToBRFV virus and are moving swiftly to prevent its introduction in our state," said **Agriculture Commissioner Nicole "Nikki" Fried**. "Mexican-grown tomatoes carrying the ToBRFV virus are a serious threat to Florida, the nation's leading producer of tomatoes and a $262 million industry in our state. We need the USDA to step up, initiate tracebacks to Mexican producers, and fulfill its responsibility to protect American growers and consumers."

"These inspections were initiated after Division of Plant Industry virologists and plant pathologists conducted a risk analysis of ToBRFV. This was in response to concerns from Florida's tomato industry, and is an example of our scientists and inspectors working together with growers to track significant agricultural diseases from around the world, and prevent their introduction to Florida," said **Dr. Trevor Smith**, Director of the Division of Plant Industry.

"Florida is at high risk for the introduction of harmful invasive plant pests and diseases such as the brown rugose fruit virus found on tomatoes imported from Mexico. The spread of this virus would cause serious economic losses for Florida's tomato producers, so we appreciate the vigilance of the Florida Department of Agriculture and Consumer Services in detecting it," said **Mike Joyner**, President of the Florida Fruit & Vegetable Association. "We also encourage consumers to support Florida farmers by buying produce labeled with the Fresh from Florida logo."

IPCs for HLB Prevention in Young Trees

Tacy Callies, October 15, 2019, HLB Management [Reprinted from Distributed UF/ IFAC Email 10/17/2019]

By Fernando Alferez, Susmita Gaire, Ute Albrecht, Ozgur Batuman, Jawwad Qureshi and Mongi Zekri

Controlling the Asian citrus psyllid vector of **huanglongbing** (HLB) is critical, especially in young trees. Reducing HLB incidence is essential for tree survival and productivity under current endemic conditions.

Individual protective covers (IPCs) are a novel strategy based on psyllid exclusion by means of a protective mesh bag. This system provides an alternative to soil drench and foliar insecticides, which reduce psyllid populations but do not efficiently prevent infection. In addition, there are concerns on increased use of pesticides and the negative impacts they pose to human health and the environment. The situation is further exacerbated by increasing levels of psyllid resistance to the insecticides, resulting in even more pesticide use. Hence, psyllid exclusion using IPCs is a promising tool. In addition to protecting trees from psyllids, IPCs can also protect the trees from other harmful insects.

Growing **citrus under protective screen** (CUPS) has been proven effective in excluding psyllids and allowing for high yields of premium fruit. However, this production system is not affordable for many growers and is not economically feasible for larger plantings of juice orange trees or for resetting, but IPCs can be advantageous in these situations.

Ideally, IPCs should be placed during planting to prevent any exposure of trees to psyllids. The period of time IPCs can stay on trees varies with the rootstock/scion combination, grove management, age of the tree and size of the cover. Multiple sizes of IPCs are now available to accommodate fast-growing trees on vigorous rootstocks or with vigorous scions such as Sugar Belle®.

With all these factors in mind, University of Florida Institute of Food and Agricultural Sciences (UF/IFAS) researchers established a citrus field trial in February 2018 to evaluate IPC efficacy and potential effects on tree growth and physiology. The trial was planted at the UF/IFAS **Southwest Florida Research and Education Center** (SWFREC) in Immokalee and consists of 90 trees of Valencia on Cleopatra rootstock arranged in a completely randomized design. Trees were either not covered or covered with IPCs and received three different rates of neonicotinoid insecticides every six weeks. Researchers monitored psyllid populations, determined infection incidence, and measured *C*Las titers(1), leaf chlorophyll content, **vapor pressure deficit** (VPD) and other physiological and horticultural parameters.

NO HLB; GREATER GROWTH

In the 18 months since the trial was established, no psyllids were detected in the trees that were covered. PCR analysis(2) of leaves detected no bacteria, and consequently leaves did not display any HLB-like symptoms. In contrast, trees without IPCs had psyllids, high incidences of HLB and displayed typical HLB disease symptoms.

IPCs modify the atmosphere within the covered canopy by lowering the VPD compared with uncovered trees. A lower VPD means that the air contains more moisture, which allows the stomata to remain open, and in turn extend the duration of active photosynthesis compared with high VPD conditions. Under IPCs, the canopy was denser, the leaf area was larger, leaf chlorophyll content was higher, and trees flushed earlier, more intensely and in a more synchronized pattern.

ADDRESSING CONCERNS

However, like any other tool or strategy, IPCs are not perfect. There are several concerns that must be noted:

Other Pests

Although IPCs were effective in eliminating psyllids and preventing HLB infection, other pests were identified within the covers. These include scales, mites, leafrollers, aphids and armyworms. It appears that the armyworm moth was able to lay eggs on the foliage through the mesh or on the mesh, and the first instars went through it. This resulted in larval infestation and feeding damage. Therefore, insecticide applications may be necessary, and scouting the trees for pests should be done regularly.

Incidence of Other Diseases

So far, SWFREC researchers have not seen any higher incidences of other common diseases such as citrus canker or greasy spot in trees under IPCs. They are monitoring this regularly to assess any potential seasonal factors that may be associated with disease outbreak.

CONTINUE

Leaf Drop
Several growers and colleagues have stated that leaf drop appears to be more severe in trees under IPCs. To investigate if this is indeed the case or just a visual perception, cages were installed around non-covered trees to collect and count the dropped leaves. Interestingly, the comparison showed less cumulative leaf drop in IPC trees than in non-covered trees during a three-month span.

Branch Bending
As the tree grows, the restricted space under the cover results in the bending of branches and overcrowding. This suggests that the small covers may need to be replaced with larger ones as the trees grow. This is an additional cost that the grower will need to take into consideration if the IPCs are intended to be used for a relatively long period of time (more than two years). In turn, this may result in trees growing HLB-free well into their productive stage, with the potential of producing high-quality fruit and yield.

FURTHER RESEARCH
As the industry in Florida is moving toward growing new cultivars for fresh fruit production, an understanding of flowering requirements and fruit set ability is needed to adapt tree cultivation to IPC systems and maximize high-quality fruit production and yields. UF/IFAS received funding from the Citrus Research and Development Foundation to expand its studies to some of these new varieties, including Sugar Belle®, Tango and Early Pride. Continuing studies will help answer important questions regarding horticultural performance, need for pollinators, and fruit-set management requirements (i.e., hormonal aids).

Current practices include removal of the IPCs at the beginning of the productive stage of the trees (usually around two years after planting). By doing so, trees will be exposed to psyllids and eventually become infected, although those two years of protection under the IPC are likely to be advantageous in retaining tree health during the most sensitive stage of early development. However, keeping the trees under the IPC for a longer time would prolong protection and in turn extend their productive lifespan.

Another important objective of the research is to assess alternative netting layouts for more cost-effective protection. This takes advantage of the edge-effect concept, which is based on the knowledge that infection and distribution of HLB are not uniform in a grove and that psyllid infestation is usually observed in trees located at the outer edges of groves. This has important consequences for pest management and may determine the most efficient IPC layouts in the grove. Different netting layouts will be evaluated through cost-benefit analysis to determine the most cost-effective and protective IPC layout.

Studies on IPCs will provide growers with timely and reliable information on how to use these tools to maximize their investment and, ultimately, improve fruit yield in their groves.

Acknowledgements: This research is supported by the Citrus Research and Development Foundation, grant #18-032C. The covers used in this study were a gift from The Tree Defender, Inc.

Fernando Alferez, Ute Albrecht, Ozgur Batuman and Jawwad Qureshi are assistant professors, and Susmita Gaire is a graduate student, all at the UF/IFAS SWFREC in Immokalee. Mongi Zekri is the UF/IFAS Southwest Florida multi-county citrus agent in LaBelle.

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[Footnotes:

[1] ***C*Las titers** is the measurement of how much antibody an organism (in this case a citrus tree) has produced that recognizes a particular epitope, expressed as the inverse of the greatest dilution (in a serial dilution) that still gives a positive result.

[2] **PCR analysis** stands for 'polymerase chain reaction.' It is a technique that allows technicians to create millions of precise DNA replications from a single sample of DNA.**]**

NOVEMBER CALENDAR OF EVENTS

Tuesday 5 Monthly Meeting: **Caloosa Rare Fruit Exchange**, 7:00 PM, Fort Myers-Lee County Garden Council Bldg., 2166 Virginia Ave., Fort Myers.

Weekly Nursery Workshops: Every Thursday **year around**, 9:00 AM until at least 1:00 PM, **Cornerstone Nursery**, 8200 Immokalee Road, North Naples – Learn about fruit trees, volunteer in the nursery, or just come and listen to Crafton's stories.

Saturday 9 & Sunday 10 **Naples Yard and Garden Show**, 9:00 am - 4:00 pm Sat., 10:00 am – 3:00 pm Sun., UF/IFAC Collier Extension Services, 14700 Immokalee Road, North Naples, Huge Plant Sale., Adults $5.00, Children under 12 Free. Facebook: NaplesYardAndGardenShow

Tuesday 12 **Beyond Basic Produce Food Safety: A Hands-On Analysis for Small Farms**, 8:30 AM to 2:00 PM, UF/IFAS Collier County Extension, Contact: Jessica M. Ryals at 239-252-4800 or jessicaryals@ufl.edu for more information.

Tuesday 12 Monthly Meeting: **Bonita Springs Tropical Fruit Club**, 6:45 PM Tasting Table, 7:00 PM Speaker's Presentation: Revive/Paradise Wellness, 28410 Bonita Crossings Blvd. #11, take elevator to 2nd floor. Cecelia Morales, Keeper of the Garden, Shangri-La Springs will be the speaker.

Wednesday 13 **Agricultural Tax Exemption**, 5:30 to 7:30 PM, UF/IFAS Collier County Extension, Contact: Jessica M. Ryals at 239-252-4800 or jessicaryals@ufl.edu for more information.

Wednesday 13 Monthly Meeting: **Rare Fruit Council International**, **Miami**, 7:00pm in the Science Village Classroom next to the Butterfly Exhibit at Fairchild Tropical Botanic Garden, 10901 Old Cutler Road, Coral Gables.

Thursday 14 **SWFREC Open House**: UF/IFAS Southwest Florida Research and Education Center, 10:00 AM to 2:00 PM, lunch will be served 11:00 AM to 1:00 PM. RSVY by phone at 239-658-3400 or email to jderleth@ufl.edu

Tuesday 19 Monthly Meeting: **Collier Fruit Growers**, 7:00 PM Social, 7:30 PM Program: Tree of Life Church, Life Center, 2132 Shadowlawn Drive, Naples. Dr. Jonathan Crane for TREC in Homestead with speak.

Saturday 23 **Fruit Tree Sale** - **Collier Fruit Growers**: 9:00 am to 2:00 pm, Freedom Park, 1515 Golden Gate Parkway, Naples.

Tuesday 26 Monthly Workshop: **Bonita Springs Tropical Fruit Club**, 6:45 PM: Revive/Paradise Wellness, 28410 Bonita Crossings Blvd. #11, take elevator to 2nd floor.

Florida Cottage Food Law Update

The Cottage Food Law in Florida[1] allows individuals to sell certain foods produced in a home kitchen. The foods must have a low risk of foodborne illness, as outlined in Section 500.80 of the Florida Statutes[2]. Cottage foods cannot be sold wholesale and can only be sold in the State of Florida. The Florida Cottage Food Law does not allow anyone to produce the food except the cottage food operator. Operators must properly package and label all cottage foods; in addition to free samples for tasting.

On July 1, 2017, the Cottage Food Law was amended. The annual gross sales of cottage food products allowed under the law increased from $15,000 to $50,000. Producers can now sell, offer for sale, and accept payment over the Internet. The product must be delivered in person directly to the consumer, or to a specific event venue.

Review the Florida Cottage Food Law document[3] and contact the Florida Department of Agriculture at 850-245-5520 if you have questions.

Footnotes:
(1) http://freshfromflorida.com/business-services/food-establishment-inspections/cottage-foods
(2) http://m.flsenate.gov/statutes/500.80
(3) http://freshfromflorida.com/content/download/70108/1634054/cottage_food_guidance.pdf

Fruits which Ripen in November:

Atemoya, avocado, banana, black sapote, canastel, carambola, carissa, coconut, dragon fruit, fig, jackfruit, miracle fruit, monstera, orange, Otaheite Gooseberry, papaya, passion fruit, peanut butter fruit, pomegranate, soursop, strawberry tree, sugar apple.

Annual Fruits: Eggplant, winter squash (Cushaw/Seminole pumpkin), pigeon pea, bell pepper, tomatoes.

Bonita Springs Tropical Fruit Club

Feel free to join BSTFC on **our Facebook group**, where you can post pictures of your plants, ask advice, and find out about upcoming events!

https://www.facebook.com/groups/BSTFC/

Link to the **next meeting**: https://www.facebook.com/groups/BSTFC/events/
Meetup Link (events/meetings sync with the calendar on your phone!):

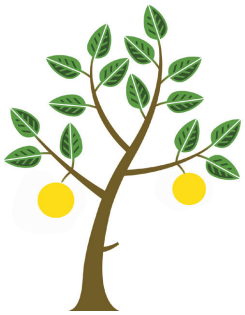
https://www.meetup.com/Bonita-Springs-Tropical-Fruit-Club/

Our **Website** (and newsletters with tons of info):
https://www.BonitaSpringsTropicalFruitClub.com/

Officers and Board of Directors:
Jorge Sanchez - Interim President
Jorge Sanchez - Vice President
Micah Bishop - Treasurer
Lisa Mesmer - Secretary
Crafton Clift - Director
Luis Garrido - Director
Berto Silva - Director

Like Us on Facebook! https://www.facebook.com/groups/BSTFC/

The Collier Fruit Growers Inc. (CFG) is an active organization dedicated to inform, educate and advise its members as well as the public, as to the propagation of the many varieties of fruits that can be grown in Collier County. The CFG is also actively engaged in the distribution of the many commonly grown fruits, as well as the rare tropical and subtropical fruits grown throughout the world. CFG encourages its members to extend their cultivation by providing a basis for researching and producing new cultivars and hybrids, whenever possible. CFG functions without regard to race, color or national origin.



VISIT US AT:
www.collierfruit.org

REMEMBER TO RENEW YOUR MEMBERSHIP!

2019 CFG BOARD OF DIRECTORS

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Jorge Sanchez, Director

Like Us on Facebook! https://www.facebook.com/CollierFruitGrowers/

The Collier Fruit Growers monthly meetings are now broadcast live on Facebook at 7:30 pm on the third Tuesday of each month. The meetings are posted on the 'Collier Fruit Growers Group's Facebook page. Access the page by requesting to be a Member.