

# Gulf Coast Fruit Study Newsletter

Volume 26, Issue 1

Edited By: Ethan Natelson

April 12, 2012 Meeting

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## *Next Gulf Coast Fruit Study Meeting*

Our upcoming meeting is  
at **7:00 PM on Tuesday,  
April 12**, with a discussion  
by John Panzarella on  
Citrus selections for the  
Gulf Coast Area.

## *Contact Us!*

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## **Air Layering – A New Wrinkle**

Layering is a general term to describe establishment of a secondary root system on an actively growing part of a plant. Air layering describes this process on a branch or shaft of the plant with no soil contact. This is usually done by removing a one to two centimeter cylinder of bark, including the green cambium layer, from a selected shaft of the parent plant. This bare area is then covering in a loose package of moist peat moss tied above and below the scored area. Rooting hormone may be applied to the scored area, but this is usually not necessary. Some advise covering the loose package of peat moss with tinfoil. After several weeks, root suckers develop in the scored area and the shaft is severed below the scored area and potted as a new plant.

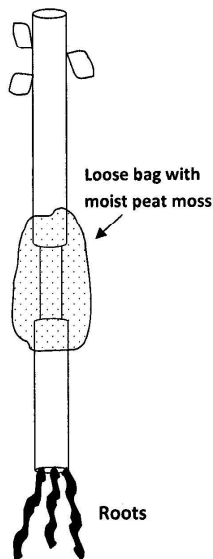
During our 2011, NAFEX/SFF/CITRUS EXPO meeting in Orlando, Florida, we were given a demonstration by Mr. Hong Park of his modification of this process with woody plants difficult to duplicate by this standard technique. Over many years of trials, he determined that the peat moss surrounding the scored area must be in a rigid opaque container under pressure. He accomplished this by designing a spherical black plastic container which was split down the center and equipped with several locking bolts to hold it back together after drilling a hole in the top and bottom to allow positioning of the shaft to be rooted. Each half was loaded with a dried, highly compressed mixture of peat moss and pulverized coconut bark, snapped shut over the scored area and water introduced at the top opening to allow swelling of the contained potting material as it imbibes water, exerting pressure on the trapped shaft. He observed, with many experiments, that increased pressure as allowed by a rigid structure was a key requirement for success.

His rooting structure seemed cumbersome and overly complex and could be functionally duplicated by cutting a section of large PVC pipe, vertically, and putting the halves back together with two caps with holes drilled in their center. This container is easily held together without bolts or glues. It is loaded by sliding one cap below the scored area, then putting in the divided PVC which is held together as a cylinder. Dry peat moss is tamped down the cylinder around the plant shaft and into the upper cap, which is then slid down the shaft to make a sealed compartment. Water is introduced through the top with a syringe, more or less as Mr. Park demonstrated (see Figure). The apparatus may be used over and over again. I have used the process described here to air layer a useful quince rootstock for our area that has proven difficult to root.

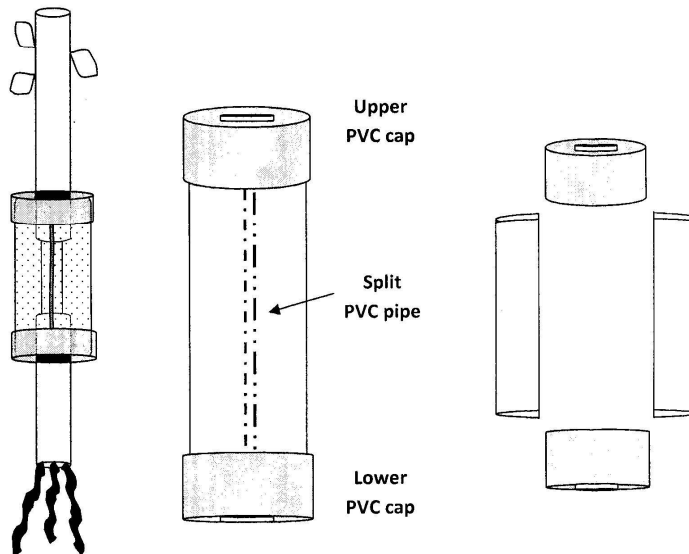
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## Air Layering – A New Wrinkle (continued)

STANDARD  
AIR LAYERING



AIR LAYERING UNDER PRESSURE



## The Annual Nafex/SFF/Citrus Expo Meeting 2011

Any confirmed citruholic would regret having missed the recent combined North American Fruit Explorers/Southern Fruit Fellowship/Citrus Expo meeting held near Orlando, Florida, with our hosts from the University of Florida. Our speakers and tour guides included William Castle, the internationally known and recently retired citrus rootstock breeder, Ryan Atwood, formerly with the citrus research station and now working with a private group in Orlando, and Malcolm Manners, Professor at Florida Southern University, the only university in the United States to offer an undergraduate degree specifically in citrus studies. We also met with Drs. Gmitter and Grosser, master citrus breeders at the University of Florida's Citrus Research and Education Station for 30 years and tasted some of their very remarkable new triploid and often totally seedless fruits that are not yet released. These fruits are generated by first developing tetraploid lines and crossing them with diploid plants to develop sterile triploid plants, often with very large seedless fruit. This work included standard citrus, satsumas, and red flesh fruits including grapefruits, oranges and pummelos. I think everyone was impressed with the **Sugarbelle** orange, which is very sweet and actually has entered the trade. For a sweet juice orange, this variety would be hard to beat. We toured and were allowed to sample fruit directly from the trees in two citrus arboretum collections and a third experimental citrus collection where we learned to identify the primary serious disease problems Florida commercial citrus growers face (*and our annoying leaf miner is not among them*) such as citrus canker and citrus greening. They appear to have given up attempting to incinerate infected trees in disease control and simply use spray techniques to lessen orchard damage. We learned that in Florida, about 85 % of citrus production goes to juice (this orange juice may be legally spiked with up to 10 % satsuma juice to add sweetness and still be labeled as pure orange juice) while in California, just the reverse occurs where about 85 % of the crop is sent to the fresh market or shipped out for fresh consumption.

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## The Annual Nafex/SFF/Citrus Expo Meeting 2011 (continued)



A Wide Assortment of  
Experimental Triploid Citrus



A Wide Assortment of Experimental  
Red Pumelos and Grapefruits

Perhaps the highlight of the meeting was a trip to a citrus packing plant – a maze of belts and pulleys and water streams seemingly running endlessly in multiple directions simultaneously and attended to by a hoard of seasonal workers that allows the processing of newly picked fruit from delivery directly from the orchard with the fruit contained in fiberglass open boxes about the size of a Smart Car. We were told that when this fruit is picked, regulations dictate that any citrus that falls to the floor of the orchard cannot be used. However, as soon as the state inspector leaves the orchard, the citrus are all rapidly picked by several people on ladders in each tree and thrown to the floor of the orchard so they can easily be collected. Since these migrant pickers are anonymous and paid on site by the weight of the bin, the bin is often salted with bottles, branches, cans and even old tires. The packing plant first removes these offending objects and does further sorting with damaged fruit finding its way to a conveyor belt emptying into a large container to be used for cattle food. Then the fruits go through stages of washing, disinfecting, sizing, dyeing (*if necessary*), drying, waxing and packaging, all done under the big eye of a computerized system that weighs each box or sack as it passes a station and can tell you which of about 60 packers filled the box and exactly how much the box weighs and how many fruits it contains.

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## **The Annual Nafex/SFF/Citrus Expo Meeting 2011 (continued)**

We began our tours by visiting a low-chill peach operation which allows an early market advantage with a high-quality peach before any competition from North Carolina, Georgia or California is available. The favorite plant is Florida-Glo, a large melting flesh white peach which is grown on Florida Guard rootstock. The trees are trained with an open center and kept relatively small to allow for ease of careful picking so as not to bruise the fruit, which is immediately, directly in the field, placed into refrigerated bins. To get the trees all in an even production cycle, the plants are sprayed with zinc sulfate in mid December. This treatment defoliates the trees and induces dormancy, allowing them all to flower later at the same time. The fruit is mature and hand-picked in April, and immediately shipped to market. This particular peach should work well in Houston and is sold in the trade.

Dr. Manners toured us through Florida Southern University which has the world's largest collection of buildings (14), and extensive covered walkways, a chapel and an observatory and a circular water pond that were all designed by the famous architect, Frank Lloyd Wright. His work was done during the period of about 1930-1940 utilizing a great deal of pre-cast concrete. When Wright began this project he demanded the university tear down two multi-story beautiful red brick buildings with white trim and large entry doors that looked like George Washington or Thomas Jefferson had lived there. These buildings were constructed in the pre-1920 era. Wright said they would look like trash next to his new work and detract from its beauty. The university president refused and Wright finally relented, rationalizing his capitulation by saying that people would then be able to easily contrast poor architecture and construction with his magnificent projects. Now many years later these two timeless classic buildings remain and are still striking in appearance, while all of his work would greatly benefit by a visit from a large wrecking ball. His extensive concrete walkways around the campus would seem designed for a race of people about 4 feet tall with extremely thick skulls and likely have caused more than a few skull fractures in individuals 6 feet or taller from contact with decorative cement corners that extend well into the walkway. His "sphere of water" must have looked unique when fully functioning, and remains perhaps the only piece of his work that should stay but could use a few colorful ducks. (next page)

Dr. Manners showed us the unique university citrus document and memorabilia center with old equipment, art work, maps, etc. – all carefully catalogued and contained in climate-controlled rooms and available for graduate student research. Citrus was thought to have been introduced in Florida by Ponce de Leon, long before the fruit arrived in Louisiana and California. All of this written material is being digitalized, in some cases by huge scanners, so it can be available for computer learning internationally.

In his retirement, William Castle is experimenting with alternate crops for Florida – particularly pomegranates. He has established a planting with more than 100 cultivars, some from ancient, more than 100 year-old trees continuing to bear in Florida and of uncertain parentage. He is doing this by developing single trunk trees, difficult to do because of the natural suckering habit of pomegranates. It appears his number one problem will be fungal infections at the base of the fruit and consequent to the humidity and rainfall. These trees are also planted in almost pure sand and require constant fertilization to achieve optimal growth. Several of the trees were already bearing fruit.

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## **The Annual Nafex/SFF/Citrus Expo Meeting 2011 (continued)**

I had an interesting discussion with Dr. Castle concerning the standard *Severinia* rootstock for citrus. He has tested this unusual member of the citrus family in comparison trials and while he found it dwarfing and with great salt tolerance, it was not as productive as the various Swingle and other hybrid crosses now used in the Florida industry. Sour orange and trifoliate rootstocks common in Texas and Louisiana, are not used there. Some years ago, a SFF member, the late Jim Mercer, sent me seeds of an unusual *Severinia* plant he collected which was a dwarf species, unknown in the trade because it takes a few years to reach grafting size. All of his citrus was grafted on it in Florida. Dr. Castle had never heard of this plant. While slow growing prior to grafting, once grafted, it rapidly produces an ideal sized tree with excellent root anchor. A remarkable demonstration, that really has to be seen to be believed. I have 10 year old dwarf *Severinia* plants still only 1 foot tall but 3 year old citrus grafts on this rootstock that are now 8-10 feet tall. Felix Cooper made the suggestion that its salt tolerance and size control might make it well-suited as a rootstock for container-grown citrus.

The only tour we could have bypassed was a blueberry planting. This does not appear to be a promising alternative crop for this climate, but all growers are worried about the future of citrus production in Florida consequent to subdivision encroachment on the orchards, burdensome industry regulations, new plant diseases, potential labor problems, and major competition from Brazil, and alternate crops are sought. At our annual dinner we had catfish which did not compare with the fare at the late Hartwell Cook's favorite restaurant in Jackson, MS. We also had two unusual dinner lectures. One concerned the successful cultivation of citrus on Vancouver Island, in Canada, by Bob and Verna Duncan who have about 400 citrus varieties protected by a variety of structural and other innovative protection.

These meetings are both fun and educational and nobody goes home without learning something that they can apply to their own circumstances. The next Nafex meeting will be in Saskatoon, Canada and the next SFF and Citrus Expo meetings at sites yet to be determined. We hope to again see some of you there.