**Tropical Fruit and Nut Crop Germplasm Committee Business Meeting**

**Wednesday, August 04, 2010 14:00-15:30**

**Directors Suite I, J.W. Marriot Hotel**

**ASHS Annual Conference, Palm Desert, CA**

Tentative agenda

14:00 – Welcome, introduction and call to order (Raymond Schnell, CGC Chair)

1. Update from the Mayaguez Repository (Irish, 10 minutes)
2. Update from the Hilo Repository (Zee-Matsumoto, 10 minutes)
3. Update from the Miami Repository (Schnell, 10 minutes)
   1. Avocado laurel wilt situation (establishment of a backup collection in Hawaii)
   2. ASBVd survey results from the collection.
4. The need to backup clonal collections and who remains as the priority/alternate sites (Goenaga, 10 minutes)
5. SSR marker development from tropical fruit crops (Irish, 10 minutes)
6. General discussion (30, minutes)

15:30 – Adjourn

**Minutes:**

Raymond Schnell (Chair) presided over the meeting. A call to order was issued at 14:00.

A general discussion took place between members, prior to meeting commencing, concerning availability of *Persea schiedeana.* Ed Stover was interested in obtaining this specific species and conversation led to both Richard Campbell and Mary Lu Arpaia stating that they had *P. schiedeana* and were willing to distribute it.

Prior to presentations and site updates the audience members introduced themselves.

**SITE UPDATES:**

Brian M. Irish presented a review of the USDA-ARS Tropical Agriculture Research Station Repository’s research and genetic resources.

* Collections are continuing to expand with new accessions being added to the current priority genera/crop groups, in addition to adding a new genus/crop group to the sites priority genera (Spanish lime: *Meliccocus bijugatus*).
* Collections are being evaluated for morphological and phenotypic traits focusing on agronomic potential. All collections are being fingerprinted focusing on microsatellite markers for their reproducibility and ease of reporting.
* A maternal half-sib population for mangos has been established and will be evaluated for disease resistance and for other agronomic traits of importance.
* An update was given on a collaborative project with the USDA-ARS Genomics and Bioinformatics Unit in Stoneville, Mississippi, in which molecular markers are being developed for many of the tropical fruit crops maintained within NPGS. This project aims to develop SSR markers to fingerprint accessions within NPGS and with the inclusion of material from collaborators outside USDA as well. The marker data will identify propagation mistakes and trueness-to-type of clonal accessions, as well as identify gaps in the collections and estimate genetic diversity in the collections.

Tracie Matsumoto presented a review of the USDA-ARS Pacific Basin Area Research Center’s research and status of some of their genetic resources.

* Several sites have merged into what are now the new facilities at the PBARC. There has been some reorganization of administrators/administrative duties. Two new scientists were hired, but were not directly involved with the NPGS projects at the Hilo site.
* Francis Zee, Lisa Keith and Tracie Matusumoto were still very much involved in genetic resources maintenance and characterization, but are now based in the new facilities in the town of Hilo. Only Francis Zee is still located at the Waiakea Research Station.
* Work with papaya has been focusing on keeping the collection isolated from previously PRSV infected areas. The site is exploring the use of transgenic PRSV plants as a buffer to protect germplasm from becoming infected. The site has also recently been involved in the regeneration of clean papaya seed for some of the germplasm accessions.
* A SCRI project awarded to Francis Zee in which ohelo berry (*Vaccinium reticulatum*) is being selected for commercial traits is being implemented in the hopes of stimulating a potential industry. This industry would fill a niche market and indirectly protect native plants (which are damaged during harvests) in National Parks which serve a fodder for fauna. The plant is being developed for commercial production systems, and also for ornamental bonsai.
* A question/discussion point was raised by Ed Stover concerning the evaluation of the peach palm collection. Also, chair Raymond Schnell suggested the potential of having the next TFN CGC meeting at the Hilo, PBARC site either prior to, or following, the next ASHS annual conference being hosted on the Big Island of Hawaii in September 2011.
* Ed Stover spoke about the American Pomological Societies’ interest in participating in a tour of the USDA PBARC’s facilities and repository farm facilities as well.

Richard Campbell provided and update on the tropical genetic resources research/program at the Fairchild Tropical Botanical Gardens.

* Richard Campbell is now located in Homestead, Florida on the former Williams Grove Farm and now renamed Fairchild Farm. During the last few years all tropical fruit collections are being consolidated to the Homestead farm.
* The collections being moved include: mango, avocado, mamey sapote, canistel, tamarind, sapodilla, and Spanish lime. Some of the ultra tropical genetic resources (i.e., Durian) are still maintained at the main site in protected areas. Still in the process of consolidating and introducing materials from Costa Rica. A partnership with a commercial nursery in Costa Rica serves as a bridge for introducing Sapotaceae form Central America.
* West Indian avocado and several other species including *P. schiedeana* are being evaluated, with many now producing copious fruit.
* Mango collections have increased substantially, with currently approximately 350 named varieties, approximately 50 numbered proprietary selections and approximately 15 other species of *Mangifera*. Some collaborative efforts are in place with Australian researchers who are helping characterize the *Mangifera* genetic resources.
* The 2009-2010 winter season was not ‘good’ for South Florida. Many of the ultra-tropical genetic resources suffered and a large percentage were lost due to sustained low temperatures. One of the specific collections affected was a large collection of jackfruit (*Artocarpus heterophyllus)* and related species. Although somewhat fortuitous, selection of jackfruit resources for preciousness also identified some cold hardy material. Another collection that ‘suffered’ was the mamey apple (*Mammea americana*) that lost many of the accessions. Due to the losses there has been a shift in direction from the ultra-tropical to the more subtropical genetic resources.
* Although Richard Campbell is no longer at the main FTBG site he can still be easily contacted through links on the main site for FTBG.
* Pam Alenstein wants to run the mango collection through the botanical gardens group.

Raymond Schnell provided and update on the tropical genetic resources research/program at the USDA-ARS Subtropical Horticulture Research Station in Miami, Florida.

* The Redbay Ambrosia Beetle RBAB (*Xyleborus glabratus*) was first found in Savanah, GA in 2002 and is thought to have come from China. The beetle vectors a fungus (Raffaelea lauricola) causing Laurel Wilt of plants in the Laureacea. The insect bores holes in the bark and transfers the disease this way. *Persea borbonia* was the first species detected that was affected by the disease. In avocados it will kill within four weeks. There has been some differences observed in avocado genotypes. The disease has been observed as far south as in Fort Pierce in Okeechobee County; however it is still not detected in Dade, Broward or Palm Beach counties. The biggest fear is that it might make it to the collection at USDA-ARS SHRS. The SHRS is in the process of backing up the *Persea* spp. collection in Hawaii. An intermediate quarantine facility in Fort Detrick has been established and we are in the process of grafting all *Persea* spp. accessions. Rootstocks were planted in 2008, 2009 and there are some 150 grafted scions in quarantine and of these about 100 have been sent to Hawaii. Ray also stated that it would be important to include the FTBG and the South Coast Field Station *Persea* spp. collection for backup in Hawaii. Some additional funds would be needed to complete the backup in Hawaii through the quarantine site, especially if new accessions were to be added. Management techniques are currently ineffective on a commercial scale. Management involves injecting trees with a product called Alamo with the active ingredient ‘propiconizole’. A single tree for each accession was fumigated and this process can damage the tree if not done correctly. The procedure takes many man hours and is expensive. Brooks Tropicals, a local packing house and avocado grower, is developing a more commercially viable technique for fumigating trees. The frequency of fungicide application is not currently known. A large seedling population is being screened at Fort Pierce in collaboration with Ed Stover and Randy Ploetz. The vector RBAB does have alternate hosts including lychee.
* A collaborative effort with Dr. Gayle Volk is being initiated to potentially backup the *Persea* spp. germplasm at the USDA-ARS National Center for Genetic Resources Preservation in Ft. Collins Colorado.
* Avocado Sunblotch Viroid (ASBVd) surveys have been conducted in the past. Only a 19% infection rate was detected in 1996 and in 2000. However in 2009 the incidence had increased to 24%. Guidelines for good sanitation (developed by U. Florida and U. California) have been followed; however, there still seems to be some spread, potentially on the tools. It is not clear how the disease moves (potentially on pollen and root grafts). A comment from Michael Bauscher, was that an effective disinfestation technique used by Scott Adkins was utilizing powdered milk.
* Fort Pierce is also is collaborating with SHRS in the evaluation of a mapping population of ‘Hass’ x ‘Bacon’ and ‘Bacon’ x ‘Hass’. The 250 seedlings have survived the tough winter and some are even producing some fruit. The same evaluations have some Florida standards included as references. The plantings will also be observed for phytophthora root rot (*Phytophthora*spp.) damage since there appears to be some water logging at the planting site. Observations also at the site showed the West Indian race being severely defoliated, whereas the Mexican race types not being affected so severely.
* Some lychees are also being evaluated in collaboration with SHRS at the Fort Pierce site.
* The tough winter also affected the SHRS site where most of the cacao collection was lost, as well as many ornamentals.

Robert Krugger provided and update on the tropical genetic resources research/program at the USDA-ARS Riverside, California citrus repository.

* The biggest issues are with the presence of the Asian citrus psyllid (*Diaphorina citri Kuwayama*) which vectors huanlongbin (HLB) disease, being reported in 2008 in California. All field propagated accessions are now protected as a single copy tree in one gallon pots. Space will be an issue and they will be moved eventually somewhere else. Space is an issue since most of the clean stock takes up greenhouse protected areas. The citrus collection is increasing with an ongoing project to bring Floridian genetic resources into the repository.
* Not much going on with date palms, especially due to stringent quarantine protocols for importation of new material. The quarantine protocol for importation of date palm and related species (*Phoenix* spp.) should be updated to reflect current disease and insect pests.
* Gayle Volk described the very successful collaborative project between the Riverside repository and NCGRP’s cryopreservation of citrus and its regeneration via micro-grafting techniques.
* Ed Stover described experiments under way to evaluate citrus maternal half-sib families at the Fort Pierce site in Florida for HLB disease resistance. The populations are also being evaluated for leaf miner and citrus canker (*Xanthomonas axonopodis*) resistance. A lot of phenotypic data is being generated and there are marked differences being observed.

Ricardo Goenaga provided and update on the importance and need to backup clonal collections and who remains as the priority/alternate sites.

* The need to discuss the issue of backing up and priority sites stemmed from a conversation between Ricardo Goenaga, Francis Zee and Peter Bretting (USDA ARS National Programs Leader) in which there was some confusion as to which site maintained a historical lychee accession. The Lychee accession had been maintained since 1947 and had moved from the Hawaii repository to Florida and was now found in Puerto Rico. It is important to designate individual USDA-ARS NPGS sites with priority genera and even more important to back up the clonally propagated accessions at some other site. Mayaguez, Hilo, and Miami have historically been good in backing up important clonal germplasm such as lychee, cacao, *Musa* spp. and now breadfruit. With the advent of cryostorage there is a greater potential to back up many accessions from priority genera. Several of the sites are vulnerable to unpredictable weather and as examples hurricanes Andrew, Hortense and Georges serve as reminders.
* Maria Jenderk explained that one of the sites with most of their germplasm protected in cryopreservation was the Corvallis repository. This was due to mainly the site having an onsite researcher dedicated to developing the techniques for cryopreservation and then NCGRP just implementing these techniques when cryopreserving. Experiments need to be carried out with many of the tropical fruit crop genera prior to preserving them at NCGR long term.

Other business:

Ray Schnell encouraged the TFN CGC members to submit plant exploration proposals. He also explained that an exploration proposal to collect *Persea* spp. in Central America had not been successful, but was planning on resubmitting.

Mary Lou Arpaia also suggested that a collecting trip to Peru for *Persea* spp. would be very valuable. In her recent trips Mary Lou Arpaia had noticed much variability and that recent findings show that *Persea* spp. have been in Peru for much longer than originally thought. Seed found in some burial sites contradicts some literature that says it is a very recent introduction.

Gary Bender suggested that a pitaya (*Hylocereus* spp. ) collection might be of some interest. However, several members commented on the discrepancies in the taxonomy for this crop, as well as potential invasiveness.

The meeting adjourned at 1530.

**List of attendees and their corresponding email address**

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