

USDA, ARS, Daniel K. Inouye U.S. PBARC, Tropical Fruit & Nut Germplasm Repository, Hilo, HI
W-6 Report for June 16, 2020
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At the Hilo repository, we maintain 14 designated clonal germplasm collections with 1200 accessions representing 61 genus and 145 species in 38 acres of fields, greenhouses and a tissue culture laboratory. Coffee is the latest addition to our designated germplasm crop. The collections of litchi (13 of 95 accessions), guava (3 of 71 accessions), and macadamia (2 of 42 accessions) have been duplicated in the greenhouse or tissue culture. Twenty-three accessions of *Carica/Vasconcellea* were regenerated. One litchi (UH Kona station), twenty-two cacao (cooperators and Mayaguez PR), and twenty-one avocados (Miami repository) were added to the respective collections. Rootstocks for mango, rambutan, macadamia and jackfruit are in the greenhouse ready for grafting. Fifty-seven requests for 381 items were filled. Pineapple tissue culture requests are tested for Pineapple Mealy Bug Wilt Viruses (PMWV) before distribution. Experiments have been conducted to optimize the source of explant material and final size of explant to obtain PMWV-free pineapple explants. Papaya seeds were distributed to University of Florida for cooperative field trial (7). In addition, papaya accessions were provided for breeding cold tolerant papaya and development of a blemish free commercial papaya tolerant to Papaya Ringspot Virus (PRSV). Foreign distributions included: guava seeds of three accessions sent to Malawi, Bvumbwe Agricultural Research Station for field trials. Five accessions of pineapple went to Micronesia, Micronesia Plant Propagation Research Center, Kosrae Agricultural Experiment station, for multiplication and field trials. Four accessions of papaya to Kenya Agricultural & Livestock Research Organization, Kenya, for field trials. Seven accessions of breadfruit tissue culture to Northern Marianas College. Six accessions of *Vasconcellea* seeds to National Bureau of Plant Genetic Resources, India, for research. Eleven accessions of papaya, seven of *Vasconcellea*, one *Jacaratia* and one *Jarilla* seeds sent to Nature Source Improved Plants de Mexico SA, Mexico for diversity analyses.

Backup of the cacao and avocado collection continues; all avocado introductions received by the repository in Hilo were tested and found to be free of Laurel Wilt (*Raffaelea lauricola*) and Sun Blotch Viroid. Twenty-two cacao (cooperators and Mayaguez PR), and twenty-one avocados (Miami repository) were added to the respective collections. Thus far a total of 8 accessions of papaya have been sent to Fort Collins for cryopreservation. In addition, 6 accessions of breadfruit were sent to Ft. Collins to develop cryopreservation protocols.

Diseases can threaten the production of crops if not detected early and managed effectively; therefore, evaluation and characterization of emerging or re-emerging diseases commenced to provide accurate diagnoses and understand host-pathogen interactions. Two new/re-emerging diseases killing agriculturally important crops in Hawaii were isolated and identified, including a *Colletotrichum* sp. causing disease on papaya fruit and a *Phytophthora* sp. killing macadamia trees throughout Hawaii Island. Coffee and cacao Crop Germplasm Committee (CGC) is being established through the Office of National Programs. Crop Vulnerability Statements are being developed for both cacao and coffee. Meetings have been arranged with collaborators in Miami, FL and Mayaguez, PR to develop common descriptor standards and standard operating procedures between the tropical germplasm repositories.