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eNewsletter for **Hawaii's Cacao to Chocolate Industry**

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Aloha Hawaii Cacao to Chocolate growers and entrepreneurs,

In this third issue of C2C we'll update you on the progress of the Hawaii State-wide Cacao variety experiment, ways to copy your best trees, fermentation and drying, cost of cacao production in Kona, a Hawaii cacao group on the Chocolate Life website, and state support of cacao.

Hawaii State-wide Cacao variety Trial – HSCT

In September we finished field planting the grafted varieties on Oahu. . Currently, the Urban Garden Center (Pearl City), Waialua (North Shore), Waimanalo and Kualoa makai(Windward Oahu) sites are planted. We will begin planting on the island of Hawaii this fall.



Fig. 1. Planting day at Waialua, we used 3 ft tall Plantra tree tubes attached to 4 ft stakes to protect the grafted trees. Bana grass windbreak in background.



Fig. 2. Dan O'Doherty plants a grafted tree at Kualoa. Trees were irrigated immediately after planting. This site has overhead irrigation until the drip irrigation is installed.

September 27 we planted the HSCT at the UH/CTAHR Waimanalo Research Farm, Waimanalo, Oahu. This completes the initial HSCT plantings for Oahu. We begin planting cooperating sites on the Big Island next month starting in Honaunau, South Kona below the highway.



Fig. 3 Laying 3 ft ground cover cloth with staples at 3 ft spacing. Holes are already dug. Sod was stunted with Glyphosate herbicide. Drip irrigation will be placed on top the cloth.



Fig. 4 Dan O'Doherty checks the irrigation (1gal/hr button drippers, in 0.72" black poly pipe donated by www.netafim-usa-agriculture.com)

September 25th we planted the HSCT at the UH/CTAHR Urban Garden Center Pearl City, Leeward, Oahu.



Fig. 5 HSCT planted in 4" x 36" tree shelters (donated by www.plantra.com), heavy mulch, incomplete stand of bana grass and 1 wk transplanted sterile *koa haole* 'KX4' a UH variety, planted N-S that will provide morning or afternoon shade. Background traffic is H1 going ewa to H2.

We are experimenting with a bare root planting system in which the graftlings are stored and transported without any potting media surrounding the roots before planting into the field. This practice may be risky but if we're successful this decreases shipment costs and logistics plus improves handling conditions. After two weeks in the pink tree shelters the trees look good.



Fig. 6 Bare root graftlings to be stored in damp paper wrapped in newspaper over night at 65 F. These seedlings were planted the following day in the same manner we use for graftlings straight from 2"x2"x 8" pots filled with perlite and ProMix – a soilless media.

Currently Dan is having over 90% success with the cleft graft method on most selections. He is using chupons (orthotropic shoots, leaves spiral around the stem) but not fan branch shoots (plagiotropic, leaves are alternate but opposite in one plane) with recently matured leaves and 1 - 2 buds per scion piece. April through October were best months for grafting in 2009. We will continue grafting until take is less than 50 % and see how far into the winter we can go. I suspect it's the cooler night temperatures that impact the graft success.

Copying you best trees

Our new cacao industry is currently based on seedlings which means orchards can be quite variable particularly in yield. The rule of thumb regarding yields in seedling cacao orchards is 20% of the trees make 80% of the yield, and the remaining 80% of the trees produce only 20% of the yield. As your trees begin bearing, mark those trees that start bearing first, also mark those that appear to have a large number of pods at harvest. If you keep records you will find seedling trees that begin bearing good yields at an early age. Then you can multiply these trees either by grafting or making air layers (see issue 2 of C2C).

What are your issues? Email (hcbitt@hawaii.edu) or call me (808 956 6043) about issues affecting you and the industry as a whole. True, I may not have the answer or the funds to address them but let's give it a try.