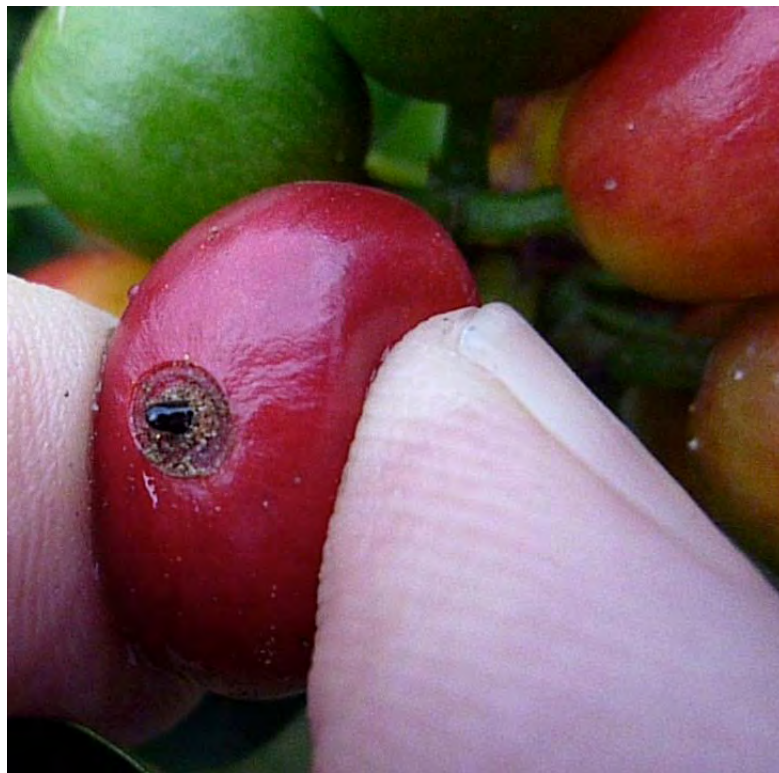


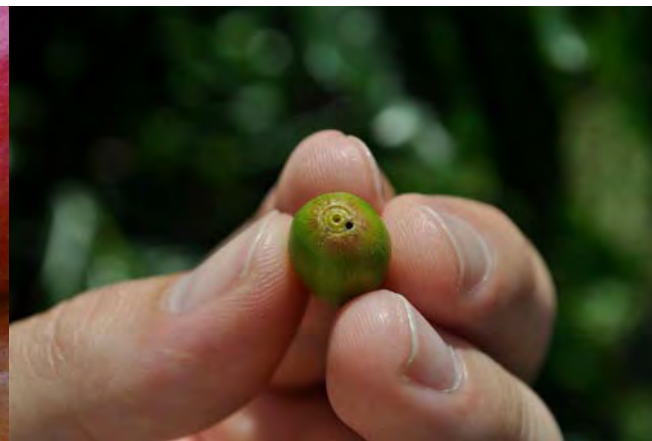
CBB Control in Coffee Fields in Kona, 2010

Farmers' Best Management Practices Workshop December 8, 2010

HC "Skip" Bittenbender, Elsie Burbano (CTAHR/UH)
and Tom Greenwell and Pepe Miranda (HCA, HCGA, CBB Task Force)



CBB in entrance hole



CBB hole in
green
cherry



CBB
already
destroyed
beans in
green
cherry



Sanitation of people and equipment before entering coffee fields is a must. Remove CBB and cherries in your hair, clothes, boots, hat, coffee bags, truck cab, truck bed, tarp or screen to cover bags, tires.

To save your farm our slogan is:
'Contain & Kill CBB'



January thru March: Pruning season

Strip Pick before Pruning

1. Remove all cherries from the tree including out-of-season, immature, ripe, over-ripe, and raisins



2. Be sure not to drop any cherry on the ground



3. Use large picking baskets



4. Spread tarps under the trees to catch cherry if practicable



5. Collect all remaining cherry on the ground



Aggressive strip picking leaves many dropped cherry.



Gas and electric leaf blower /vacuums

Racking dropped cherry



6. Place all cherry into sealable black or clear plastic bags or plastic boxes and store in the sun but in safe area so not to be accidentally torn open.



7. Keep sealed until all CBB are dead
and cherry decomposed.

If bags / boxes are in sun the heat will kill the
CBB in a week or two.

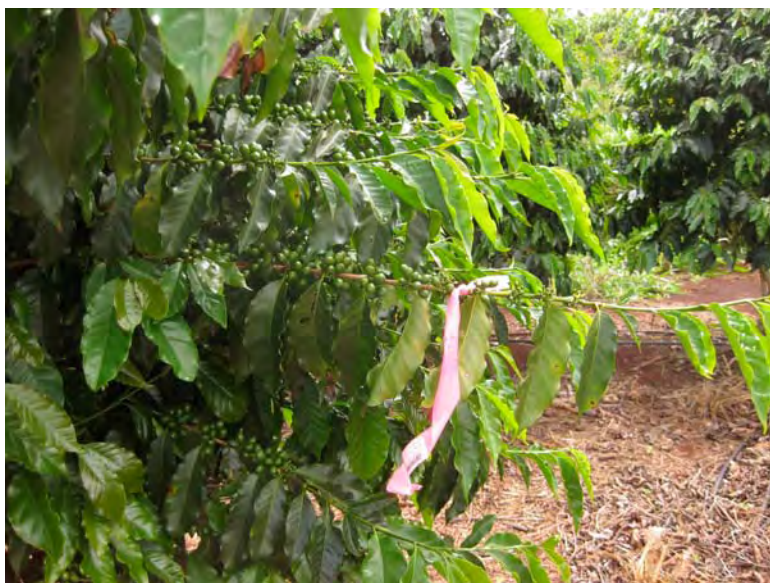
Only after all CBB are dead should you compost
openly.



Now prune, it is important to strip pick before pruning to prevent cherry falling on the ground.



May to August: Growing season



Rains begin and new cherries grow larger.

CCB leave the dropped cherries and raisins to attack the new cherries.

1. Now is the time to beginning trapping but keep in mind that these traps will catch more than just the CBB, other small beetles like BTB and TNB will be caught.



Distribution of CBB traps in coffee fields

2. Non infested fields: traps should be positioned away from the fields don't attract beetles into your field.



Distribution of CBB traps in coffee fields

3. Infested fields: 8-10 traps per acre distributed evenly throughout the farm at 4.5 to 5.5 feet height



4. Monitor traps weekly (catching anything?, fallen, broken, refill lure, clean out dead beetles, refill trapping solution)



5. Refill the lure bottle with mix of 3 parts Methanol to 1 part Ethanol



6. Refill the trapping solution in bottom 2" of trap (soapy water, or radiator fluid)



Buy or make your own CBB traps



AgBio Inc. www.agbio-inc.com
Contact information: Jan
Meneley, Westminster, CO
80031; ph 303-469-9221; fx
303-469-9598
\$9 plus shipping



Spray red
paint on
clear 2 liter
soda bottle.



Transparent
green 2 liter
bottles work
without
painting.

Check www.CTAHR.Hawaii.edu for our CCB page
and instructions to make your own traps.



Additional source for CBB or broca traps which
maybe less expensive.

Santiago Sarguello

Sarguello@ecomtrading.com

AV. LAS PALMAS LT. 9.24 Y 25

CD. INDUSTRIAL BRUNO PAGLIAI, VERACRUZ,
MEXICO

TEL: 52 555-2576-535



August to December: Harvest Season

Sanitation of people and equipment before entering coffee fields is a must



1. Be sure harvesting equipment (vehicles, coffee bags, picking baskets, gloves, harvester's clothes, etc.) are free of CBB, especially when coming from another farm even if that farm is thought to be free of CBB.



2. Use tarp, mat, coffee bag, or ground cover cloth to catch dropped cherry.
Put dropped cherry into basket.



Yes this will be a challenge on rocky farms, let's us know what other ways you catch cherry.



3. Using larger picking baskets will help keep cherries from accidentally dropping to the ground while picking.



4. When pulling branches down to pick be careful not to strip cherries from the tree by aggressive handling of the verticals or laterals. This results in many cherries falling to the ground.



5. DO NOT remove or sort the unripe or overripe cherries from the ripe cherry unless it is into plastic bags/containers that can be sealed to prevent CBB escape. NEVER sort and throw onto the ground. Its better to bring all the cherries to the wet mill where it can be safely sorted.



6. When transporting coffee cherry to the mill, cover it with a tarp or net with .02" or less holes so CCB cannot escape while you drive.



7. Only take bags that have been treated to kill CBB back to your fields. Do not trust non treated bags even if they are thought to have only been used in a non infested farm because they could pick up hitchhiking CBB from the mill. Hot water 160F dip, in mechanical dryer or laid flat under clear plastic to heat up will also kill but takes longer.



CCB
killed in
steamy
water
bath
then
dried



8. Clean all cherry from the vehicles before leaving the mill and returning to the coffee fields.



Technology that is not available yet

- Legal use of commercial preparations of the fungus *Beauveria bassiana*.
- Identified predators and parasites of CBB in Hawaii and how to improve their impact.
- Predators and parasites not in Hawaii.
- Insect eating birds like the black crested warbler eat CBB in Jamaica.
- Insecticides- best time would be during the growing season as CBB seek new cherry. We are evaluating.



Sources of CBB Best Management Practices for Growers and Millers

Remember to check at our CBB page on www.ctahr.hawaii.edu, at least once a year as we expect to make improvements and additions to our tactics to 'contain & kill CBB'. Questions/ comments on this presentation email Dr. HC Bittenbender <hcbitt@hawaii.edu>

Check your coffee association's web page:

<http://www.hawaiicoffeeassociation.com/>

<http://www.kona-coffee-council.com/>

<http://www.konacoffeefarmers.org/>

<http://mauicoffeeassociation.com/>

<http://www.kpfc.com/>

<http://hilocoffeemill.com/index.aspx>

<http://www.konafarmbureau.org/>

<http://hawaii.gov/hdoa/pi/ppc/coffee-berry-borer-folder/coffee-berry-borer-information-page>

http://www.hear.org/species/hypothenemus_hampe/

