

MANAGING
the
COFFEE BERRY BORER
in the Home Garden

West Hawaii Master Gardeners
2013

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CBB - A bark beetle endemic to Central Africa

Their life cycle inside the host plant makes these insects difficult to control (Rudinsky 1962)



Entry by Female

Male CBB do not fly and remain inside the berry



Eggs & Larvae



Remember!

Between Harvest Seasons

- females remain inactive (but alive!) in old berries on the tree &
- on the ground waiting for the first rains, which stimulate them to emerge and search for new berries in which to begin the next cycle.

Infestation occurs:

- in berries on the tree. Reproduction continues in berries *even if they have fallen to the ground*
- in parchment coffee, if moisture content is above 11%.

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Coffee berries on the ground
are
CBB Hotels!!!

- We can do 3 things to manage CBB in our home gardens:
 - Maintain good garden sanitation
 - Monitor for the CBB with traps, visual monitoring and/or sampling
 - Spray as necessary with *B. bassiana* (fungus)

- #1 – Most important thing that we can do: Practice good garden sanitation.



Sanitation of all people and equipment before entering coffee-growing area is a must!



Don't leave any cherry on the ground

- * Spread tarps under the trees to catch cherry if practicable
- * Use a gas or electric leaf blower/vacuums
- * Collect all remaining cherry on the ground



Strip Pick Before Pruning: Remove all cherries from the tree including out-of-season, immature, ripe, over-ripe, and raisins.



X Don't use white kitchen bags.

Place all infested cherry into sealable, heavy-duty black or clear plastic bags or plastic buckets & store in the sun for 2 wks. till CBB are dead

- Freezing the beans for two weeks will also kill the beetles.
- Or you can bury the beans at least 6 inches underground.



#2: TRAP to monitor for spikes in beetle population

- Primary purpose of traps is to help **monitor for appropriate times to spray** with *Beauveria bassiana*



Distribution of CBB traps in NON-INFESTED areas: traps should be positioned away from the trees so that you don't attract beetles into your field.

- In non-infested areas:
 - Use 2 – 4 traps per $\frac{1}{4}$ acre (11,000 sq. ft.) to monitor for CBB in non-infested areas.



Distribution of CBB traps in INFESTED AREAS: use 5 - 10 traps per acre (2 - 4 traps per $\frac{1}{4}$ acre or per 11,000 sq. ft.) distributed evenly throughout the coffee trees, but not actually hanging in the coffee trees.

- Place CBB traps at 2 – 5 ft. height.
- Some people are now placing traps near the ground, too, especially in areas where there are downed coffee cherries that are difficult or impossible to retrieve, such as on rocky slopes

- Place traps at close intervals around pulping area and mill.

- Attractant to use in trap: 1:1 or 3:1 methanol to ethanol solution in a vial
- Maintain soapy water in bottom of trap. Use a few drops of liquid detergent per cup of water to drown the CBB. It is essential to maintain **both** the attractant and the soapy water in the trap.



3 You can use Beauveria bassiana (Botanigard/Mycotrol O)--soil & foliar fungus—at least at 60 days after first blooming, then at least every 30 days & at end of harvest after clean up. Very important to monitor for infestations with the traps, visual monitoring and/or sampling & spray when needed.

Use 32 oz (1 qt.). fungus + 3 oz. Silwet or widespread surfactant + water (total 30-100 gal.) to cover 1 acre trees. The more water the better.

May be mixed with soap/oil, Neem, EM, Bt and some foliar fertilizers

Be sure to wear appropriate protective gear!

- To mix Fungus for smaller areas:
 - For a 4-gallon backpack sprayer, use:
 - 4 oz. fungus
 - 1 Tablespoon surfactant
 - Fill with water



- Pyrethrin Pesticides
 - Very good kill rates with EverGreen 6% or Pyronyl 6% (pyrethrin with PBO) products, but there is no residual kill. Can use for knocking down hot spots or population spikes. Use 15 oz. per acre of coffee in a foliar spray. Can be mixed with fungus, foliar fertilizers or Surround WP clay product.

- Surround WP Clay Repellent
 - Effective repellent for CBB & potential yield increaser.
 - Best results – use a tank with an agitator or pump.
 - Best to continue spraying the fungus (can be sprayed together.)
 - Mix 15 lb. clay + surfactant + 20-60 gallons of water per acre.
 - Trees will be off white and leaves non-shiny after spraying.

TIPS



*If you find CBB in your coffee cherries, cover the fermentation tank with window screen & spray the screen with vegetable oil spray

*Don't let the screen touch the water.



- Skim off any floaters as usual. If you have CBB in the beans, there will be a lot of the CBB in the floaters
- Put the CBB in a secure black bag or bucket and leave in the sun for 2 weeks to kill the CBB



If taking cherry to a mill, cover with a tarp or net with 0.02” or less holes so CBB can’t escape.



CCB
killed in
steamy
water
bath
then
dried

Only bring back bags from the mill that have been treated to kill CBB:

1. Hot water dip @160⁰F
2. Mechanical dryer
3. Laid flat under clear plastic to heat up
4. Soak in soapy water overnight



Clean vehicle before leaving the mill.



After you've dried your coffee down to at least 10.5%, store it in a secure Grainpro bag to maintain the moisture level and prevent contamination by CBB. This will also prevent escape of CBB from the bag.

- What are the 3 things that you can do to manage CBB in your home garden?

The 3 things we can do to manage CBB in our home gardens:

- Maintain good garden sanitation
- Monitor for the CBB with traps or sampling
- Spray as necessary with *B. bassiana* (fungus)

Also: Recommendations for Coffee Berry
Borer Integrated Pest Management in Hawai'i
2014

http://www.konacoffeefarmers.org/wp-content/uploads/2014/03/KCFA_IPM-2014.pdf



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