

Coffee Berry Borer: Integrated Pest Management

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1 Field Sanitation

Field sanitation and stripping cherry at the end of the harvest season, regardless of CBB infestation level, are the most important CBB control activities. If left unchecked, one CBB could potentially multiply to over 15 million CBB in a season. When all cherry is removed from the field and there is nothing to shelter or feed CBB, the population is immediately reduced. Strip picking is a proactive approach that all coffee farmers in Hawaii should apply.

- Every farmer should strip pick all coffee trees at the end of the harvest season.
- Strip pick all cherry prior to flowering and/or pruning.
- Avoid allowing raisins to develop on the trees as they easily dislodge from branches and end up on the ground.

CBB infested cherry must be disposed of to prevent re-infestation to your coffee farm. We recommend using either completely enclosed buckets or bags that are left in the sun for at least two weeks. It has been observed that CBB can chew through plastic bags so if you are using bags, use thick ones. Other options are burying infested cherry (~6 inches deep); however, this may not be viable solution for farms with rocky soil.

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Pruning

If using pruning as a CBB control method, stump pruning is the only viable method for establishing a large area without food or shelter for CBB. Traditional Kona-style or Beaumont-Fukunaga pruning by rows will not eliminate large CBB infested areas. It is important to remember that pruning is not necessarily a control method; however, it can help make other control methods easier and more effective (e.g. stripping and harvesting, better spray coverage, etc.). Removal of excess branches also helps to improve airflow, thereby, reducing high humidity living spaces, which CBB prefer.

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Field Monitoring

Traps may be used as a monitoring tool to determine when CBB is active and vulnerable to spraying. Traps can be used to help identify areas with relatively high infestation levels or “hot spots”. It can also be a good indicator of when to use the “Thirty Trees Method for Monitoring and Control”.

We recommend trapping immediately after the harvest season, and servicing and monitoring them at least every two weeks. Home-made traps with inward-facing flaps and commercial broca traps are equally effective in catching CBB. Researchers have found that a mixture of a 1:1 or 3:1 methanol to ethanol solution in a vial with a 2mm hole or disposable pouch is effective in attracting CBB. Soapy water is recommended as the easiest and cheapest solution to kill CBB in traps.

Since trapping is not used as a control method, as few as 5 traps per acre can be sufficient enough to monitor CBB activity. Traps should be placed between two to five feet from the ground as most CBB activity takes place at this height.

CBB sampling helps you determine when to spray *Beauveria*. With well-timed sprays you can reduce infestation levels early on in the growing season.

- Begin sampling and monitoring, using the “Thirty Trees Method for Monitoring and Control”, approximately 60-90 days after the first flowering.
- Year-round flowering may require year-round sampling and monitoring.
- Sample at least every 2 weeks at the beginning of the season and once a month thereafter.
- Sampling before and after you spray, allows you to see how effective your treatment is.

The Cenicafé threshold is 5% when determining when to spray *Beauveria*. The threshold for Hawaii growers may be closer to 2%, but each grower must find the percentage when it is economical for them to spray. This “break-even” point may be determined through a cost-of-production analysis which would include such information as current product price and yield losses.

Before spraying *Beauveria* or any other pesticide, read and follow all label instructions. The only *Beauveria* products that are approved for the use of coffee are:

- Botanigard® ES (EPA Reg. No. 82074-1) – Conventional
- Botanigard® 22 WP (EPA Reg. No. 82074-2) – Conventional, NOT FOR SOIL APPLICATION
- Mycotrol® O (EPA Reg. No. 82074-3) – OMRI™ approved

For tree applications:

- Spray coffee trees with 32 ounces (1 quart) of *Beauveria* per acre; plus
- Surfactant (Silwet L- 77® Surfactant, Widespread® Max, etc .) at rates according to the label; plus
- At least 30 gallons of water per acre.
- Spray the entire tree including the trunk, base of tree, and underside of leaves
- Spray to wet but avoid runoff.
- Tree size, density, age, and type of sprayer will determine how much water is needed per acre.
- Spray at least once a month or as often as monitoring and sampling warrants spraying.

- Spray in the afternoon or evening and on cloudy days if possible.
- Avoid spraying during bloom and when bees are actively foraging.
- Shake *Beauveria* vigorously before adding to water to suspend spores.
- Store in a cool, dry place. Avoid storage at temperatures below freezing or above 85° F.
- Use tank mix immediately, and avoid holding spores in water solution for more than 24 hours.
- Provide enough time for leaves to dry after spraying to avoid rain washing them off.

This CBB IPM summary was excerpted from:

Recommendations for Coffee Berry Borer Integrated Pest Management in Hawaii 2013.

To view this complete CBB IPM report, please visit the CTAHR website at

<http://www.ctahr.hawaii.edu/oc/freepubs/pdf/IP-31.pdf>



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