

How to Kill CRB with a Biological Insecticide

Biological insecticides are organisms that attack and kill insects, including the Coconut Rhinoceros Beetle (CRB).

The most available and effective biological insecticide for CRB in Hawaii are a living fungi called *Metarhizium anisopliae* (MA for short).

MA is widely used in agriculture, hydroponics, and gardening to reduce insect pests. Fungi like these are some of the most important natural enemies of beetles, especially when beetles get out of control, as they are in Hawaii today. These fungi help keep beetle populations balanced in the wild, but MA has become depleted in modern soils. Thus, we replenish them so they can do what they naturally do—kill beetles.

MA has been extensively tested in Hawaii against CRB and is highly effective, killing both adults and larvae in 3-10 days.

CRB spend most of their lives (11 months) in mulch piles and decaying vegetation. They spend only about 42 days in trees, feeding on heart of palm. So MA is applied to their home, the mulch and decaying vegetation, where they spend the large majority of their lives. You can spray it on your trees as well, but it likely won't get established there as it needs a damp, decaying place to thrive.



How MA Works

- Spores land on an beetle's body.
- The fungus penetrates the cuticle, grows inside the CRB, and produces toxins.
- The CRB dies in about a week, and the fungus emerges from the body, making new spores.
- This cycle can repeat, spreading naturally in mulch or soil.



Why We Like MA for CRB Control

- **Natural & organic:** Often certified for organic production (check the product label).
- **Safe for non-targets:** Doesn't harm bees, butterflies, earthworms, or humans.
- **Self-sustaining:** Can persist in soil and mulch for weeks to months under moist, shady conditions.

- **IPM-friendly:** Fits into Integrated Pest Management — can be combined with traps, mulching practices, or essential oil systems.



How to Use MA for Controlling CRB

- Buy MA on Amazon or elsewhere. A one-pound bag of spores costs around \$50 and goes a long way. On Amazon search for “MET MAER *Metarhizium anisopliae*” for instance. [There are other online providers, and some of them provide syringes of MA, useful especially if you’d like to propagate MA yourself.]
- Mix about 3 teaspoons of the spore powder per gallon of water into a pump sprayer, available for \$15-\$25 on Amazon.
- Spray everywhere on your land except where there’s vegetation, except lawns. CRB loves regular garden soil and will even bore into bags of garden soil and lay their eggs.
- It will kill not only CRB but other beetles, like Japanese beetle and their larvae. Plus it kills ants, termites.
- Repeat the spray every month or so, to help MA get established. Once it’s established, it will likely persist and provide protection for years.
- Form a hui with your neighbors and share the MA and the sprayer.



Why Isn’t the State Using and Promoting MA

Multiple strains of MA are naturally present in Hawaiian ecosystems. Multiple studies prove this, and prove that MA is effective against CRB in Hawaii. And yet the State of Hawaii still says that MA is “Effective but not available/registered in Hawaii”.

MA has been used by Hawaii gardeners and nurseries for decades (though, because it’s not registered, nurseries can’t advertise they use it).

MA is used to control CRB in every country in South Asia (where CRB originated). It is also used in Samoa, Tonga, and Fiji. It is technically “not approved” in Guam but it is known and used there as well. In Samoa “Introductions [of MA] dating back to 1913 still persist; growers sometimes re-apply local isolates, although products are not formally registered.”

So, you decide, given the glacial pace of government, whether you’d like to wait a few years, or save your coconut trees today.