



TREATMENT CYCLE OF CRB BREEDING MATERIAL

To use the table below reference the type of waste that you have and select appropriate kill and slow treatments. Perform one of the kill treatments every 4 months.

Most plant waste and decomposing plant products can be breeding material for CRB as it decays. You can manage CRB populations and reduce the risk of CRB establishment by periodically treating material with one of the lethal treatments listed in the table below. CRB take 4-6 months to develop from an egg to an adult that can fly to new areas. If the plant waste is subjected to a kill treatment every 4 months, the CRB growing in the material will be killed before they have a chance to escape. Additional treatments can slow their development, kill some of the CRB, or make it harder for them to find the material but will not prevent infestation.

Plant waste/products	Treatments that Kill all CRB				Treatments that Slow CRB Growth						
	Chip	Hot compost	Submerge	Steam	Grind	Bury	Net	Till in	Spread thin	Tarp	Pesticides
Tree and palm waste <i>Branches, logs, stumps, fronds, leaves</i>	✓			✓	✓		✓				✓
Mulch <i>Chipped wood, sawdust, chopped plant material</i>		✓		✓		✓	✓	✓	✓	✓	✓
Finished compost <i>Plant material that has been composted and cooled to under 120 F</i>			✓	✓		✓	✓	✓	✓	✓	✓
Soil <i>Any planting medium that contains organic material like peat, coir, wood chips, compost, or humus.</i>			✓	✓		✓	✓	✓	✓	✓	✓
Non-woody plant waste <i>Grass clippings, leaves, vegetables, fruits</i>		✓		✓		✓	✓			✓	

An example treatment plan would begin with whole logs and branches being staged for 4 months. Chipping those will kill any CRB but the chipped wood can become infested so you have 4 months to stage the chipped wood before introducing it into a hot composting process. Once the compost cools below 120 F, parts of it are at risk for infestation so the cooled compost can be staged for 4 months then submerged in water for 48 hours to kill all CRB larvae. The water is drained to use as compost tea and used to fertilize crops, the solids are tilled into garden beds before a planting. In this example, the material is staged for over a year but if done properly, does not allow an adult beetle escape to feed on palms or lay eggs in a new site.



TREATMENT CYCLE OF CRB BREEDING MATERIAL

Information and definitions

Treatments that Kill all CRB

Chip - The acceleration of the wood chips and cutting action kills all life stages. Chips can be infested immediately after processing so storage or transport should be done on the same day.

Hot compost - CRB begin to die around 115 F but 131 F core temp is a good target to ensure that even the colder spots (edges and areas touching soil) are at least 115 F.

Submerge - Complete submersion under water is required. Watering heavily will not kill CRB. Adults may escape but all larvae should die by 48 hours. Submersion in natural bodies of water and reservoirs is generally illegal. A tub, pool, or lined pit will be required in most cases.

Steam - Steam takes a long time to penetrate deep and fine material. You must measure the core of the material to ensure that all material reaches 120 F for at least 1 hour. Use of a sealed container, vacuum system, and perforated piping can speed up the process.

Treatments that Slow CRB Growth

Grind - The distance between plates and type of material probably affect the number of CRB killed but the efficacy has not been tested.

Bury - CRB are very good diggers but burial will probably mask the smell and requires more work for CRB to reach.

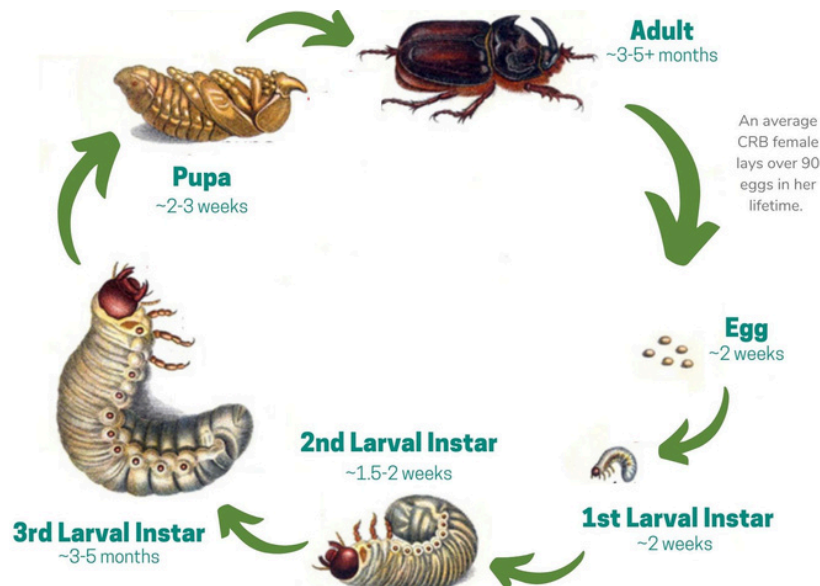
Net - Monofilament netting has been shown to entangle and exclude CRB but it does allow some through. Use multiple loose layers of 1/2" to 3" hole size netting.

Till in - Similar to burial the scent will be reduced. The nutrition available to CRB will also be diluted.

Spread thin - Material spread thin can allow easier access by chickens, mongoose, pigs, and rats to eat CRB. It also promotes drying.

Tarp Tarps can reduce the available scent but they can also keep material moist. CRB can burrow under or through most tarps.

Pesticides - Pyrethroid pesticide products labeled for application to mulch, wood, or places that insects are found have been tested and provide some protection. Depending on the site, there may be a product that can be legally applied. Refer to the labels of Triple Crown, Suspend, and similar products to see if they can be applied at your site.



CRB start their lives as larvae (grubs). They breed in any decomposing plant material (not just palms) like compost, garden soil, mulch, rotting stumps, or green waste. Larvae can be anywhere from a few millimeters to 3.5-4 inches in length and spend nearly 4-6 months in this breeding material.