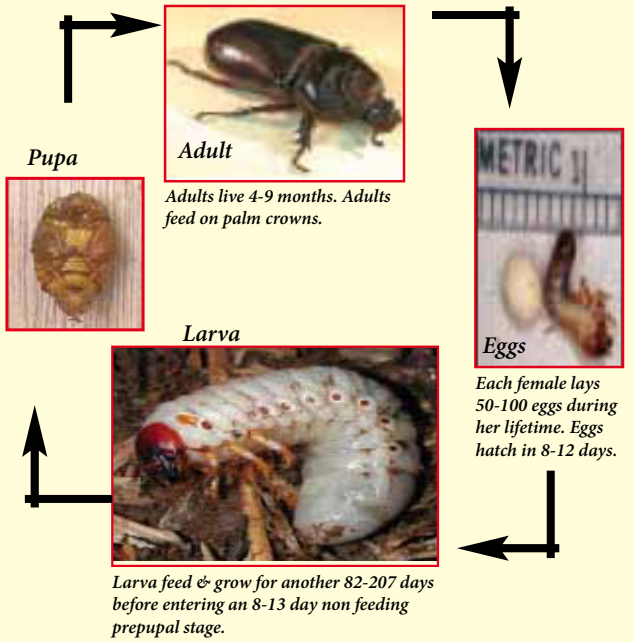
## WHAT IS A RHINOCEROS BEETLE?

Rhinoceros beetle, is one of the major pests of coconut in Fiji. The adults grow to a length of up to 55 mm. The males can be differentiated from females by the longer horn on their heads and by the absence of reddish colored hairs on the last ventral segments of the abdomen.

***Females (left) tend to have shorter "horn" and fuzzy posterior.***

## LIFE CYCLE

Eggs are laid and larvae is developed in decaying logs or stumps, piles of decomposing vegetation or sawdust, or other organic matter. Pupae are formed in a cell made in the wood or in the soil beneath where the larvae feed. The beetles are active at night and hide in feeding or breeding place at the breeding site.




## WHERE CAN I FIND RHINOCEROS BEETLES

Adults are usually found in the crown of palms. Females will lay their eggs in dead standing tree trunks, sawdust heaps or piles of compost. After 4 to 5 months a mature larvae will emerge and transform into a pupae. 4 to 5 months later, an adult will leave the breeding site and head for the nearest palm to feed.

## DAMAGE SYMPTOMS

The mature adult is the destructive stage. They bore into the crown of the palm, resulting in a characteristic V-shaped cut in the fronds. This damage reduces the productivity of the coconut palms and if severe, may even kill the tree.


## CONTROL OF RHINOCEROS BEETLE

Rhinoceros beetle is mainly controlled using biological control methods. As with chemical control it is difficult to place chemicals high on coconut fronds where the beetle mainly feed.

## BIOLOGICAL CONTROL

### VIRUS DISEASE

A virus known as *Baculovirus oryctes* can be spread within the plantation by releasing beetles that were artificially infected in the laboratory. Spread of the disease to other beetles takes place on contact, killing most of the adult beetles 3 to 6 weeks after infection.

### FUNGUS DISEASE

A fungus known as *Metarhizium anisopliae* causes another disease, affecting and killing older grubs and adults within weeks. The fungus is cultured in the laboratory and solutions of fungus spores are pored on piles of coconut logs or compost heaps.

*A fungus inoculated Ground Trap*

*Larva infected with Metarhizium anisopliae*

## PHEROMONE TRAPS

More recently a chemical attractant, ethyl-4-methyloctanoate (also known as Pheromone), has been used in traps to attract and kill the beetles.

## PHYSICAL CONTROL

- Chop down & burn dead standing tree trunks
- Regularly check possible breeding sites for grubs and destroy any grubs found
- Avoid piling up sawdust or compost piles. Rather, spread them out thinly to reduce chances of egg laying
- Cut stumps as close to the soil surface as possible.
- Piles of dead leaves or grass can be composted, used for mulch, burned, or spread on the ground in a thin layer
- Compost piles should be maintained properly.

***For more information please contact:***
***Your nearest Extension Office.***

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Information & Communication Section,
Ministry of Agriculture
Private Mail Bag, Raiwaqa.

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# CONTROL

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