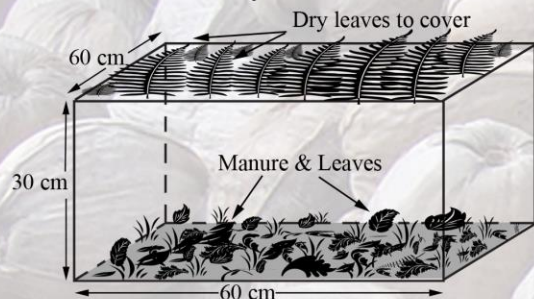


Setting up of a breeding site for the virus

- A hole in the ground (size is 30 cm deep x 60 cm long x 60 cm wide) is made in the shade near the coconut plantation (see diagram below).
- The hole is filled with manure.
- It is covered with dry coconut leaves



- The manure is kept moist by watering every 2 days.



Breeding site for coconut beetle

- The beetles lay eggs in the breeding site. Eggs hatch and the larvae develop and increase in size by feeding on the manure.
- The virus can be released shortly afterwards.

How can I help to control this beetle?

- **Eliminate dead trunks/ debris to prevent reproduction of the insect**
- **Use clean/ healthy planting materials to avoid infestation of coconut plantations**
- **Contact the Entomology Division when signs of damage or presence of insects are observed**



Biological Control of the Rhinoceros Beetle (*Oryctes rhinoceros*)



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Introduction

Rhinoceros beetle, *Oryctes rhinoceros* is a pest of the coconut palm in Mauritius. It was accidentally introduced in our island in 1962 on board ships from Diego Garcia Island.

Oryctes rhinoceros causes significant damage on coconut palm bringing severe reduction in nut production. It has also reported to infest ornamental palms.

Where can one observe rhinoceros beetle?

The insect has three habitats:

- Crown of living palms.
- Dead palm trunks.
- Compost/ manure.



Damage caused by beetle feeding on leaves
(note typical V shape on frond)



Healthy larva of coconut beetle

Biological Control Programme in Mauritius

It is difficult to control this insect with pesticides on a large scale. Predators and parasitoids were introduced for controlling this insect. However, it was not successful due to poor establishment.

With the introduction of a virus named *Baculovirus oryctes* in 1970, it has been possible to suppress the pest population. Since then, the Entomology Division has been maintaining a culture of this virus under laboratory conditions. The virus is regularly released in coconut and palm plantations.

Main benefits of using *Baculovirus* in biological control programme

- Highly specific and effective to rhinoceros beetle
- Easy to prepare and release in infested fields by using cheap materials e.g. manure and saw dust.
- It paralyses the insects quite rapidly
- The virus can remain firmly established in its new environment after release
- The pest population is kept at low levels, thus not causing economic injury by the action of the biological agent only.



Mode of action of the *Baculovirus oryctes*

The virus affects both the adult and larval stages. The larvae and adult ingest the viral particles with their food. Once in the alimentary canal, the virus invades cells of the body, multiplies and infects organs such as fat bodies, muscles and gonads.



Larva infected with virus



Storage of virus in sawdust medium at low temperature