3. Biological
   a. Green Muscardine Fungus - mix with sawdust in the trap box.
   b. Baculovirus - release of orally-infected adults.
4. Chemical

When necessary, especially on structural materials like posts and fences and rotting coconut stumps.

Management of various forms of potential beetle breeding sites that poses a threat to existing stands

<table>
<thead>
<tr>
<th>FORM</th>
<th>ACTION TAKEN</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Coco log</td>
<td>Utilize, burn, bury</td>
</tr>
<tr>
<td>b. Sawdust heap</td>
<td>Scatter thinly on ground; mix with GMF to increase level of infection.</td>
</tr>
<tr>
<td>c. Heaps of animal manure</td>
<td>Scatter thinly, mix with soil.</td>
</tr>
<tr>
<td>d. Corn cobs</td>
<td>Scatter thinly on ground; mix with soil.</td>
</tr>
<tr>
<td>e. Rice straw heaps</td>
<td>Scatter thinly on ground; regular inspection/collection.</td>
</tr>
<tr>
<td>f. Coco stumps</td>
<td>Overgrow with covercrop immediately while still fresh.</td>
</tr>
</tbody>
</table>

FOR ADDITIONAL INFORMATION
Call, write or visit:
The Crop Protection Division
Davao Research Center
Philippine Coconut Authority
Bago Oshiro, Davao City
Tel. No.: (092) 253-0116
Fax. No.: (082) 253-057
E-mail pca-cpd@mzcom.com
pca.ead@mzcom.com
IMPORTANCE

Rhinoceros beetles are the most injurious pest of coconut. They are found in the farm at low population levels but could easily shoot up when favored breeding media are available. The adults of the pest are the injurious form.

NATURE OF DAMAGE

The rhinoceros beetle bores its way into the soft tissues in the bud. As the leaf emerges, it exhibits symmetric cuts and in many instances the spathe is missing on the axil. Depending on the level of population, the leaf may show varied forms of damage ranging from single cuts double or multiple cuts. Leaves with cut at the base usually breaks off as it emerges.

CAUSES OF BEETLE OUTBREAKS

Abundant breeding sites like rotted trunks, stumps, heaps of sawdust, corn cobs, rubber tree, heaps of rice straws, sugarcane bagasse, animal manure and others.

LIFE CYCLE OF THE BEETLE

The beetle goes through four stages which take about 5-6 months to complete, with the immature stages staying in the breeding site in 4-5 months giving ample time for control implementations.

CONTROLLING BEETLE INFESTATIONS

The most practical approach in beetle control is preventing the flight of the adult to cause damage.

1) Mechanical

Use of Trap Box Egg Laying Site

a) When felling to be done or has just been done;
b) As precaution to prevent population buildup from felled, rotted palms resulting from typhoons, drought, lightning injury and other calamities;
c) When adjacent farm do not practice IPM on rhinoceros beetle.

2) Cultural

a. Intercropping - breeding sites do not form due to constant cultivation.
b. Sanitation - potential breeding sites are burned or utilized as firewood.
c. Covercopping - conceals potential breeding sites.

Trap box

- insect collection every 115 days
- replenish sawdust when necessary
- re-introduce 0.5 kg GMF every six months
- install five traps per hectare