

OTHER CONTROL MEASURES

Mechanical Control

Prune infested leaves and destroy beetles especially in nursery seedlings and young plantings



Cultural Control

Plant covercrops, other leguminous crops and banana under coconut to enhance population of parasitoids and predators (earwig) as they feed on nectars of these crops



Chemical Spraying

Chemical spraying may be done on a case to case basis (feasible only in nursery seedlings and young plantings) but not compulsory especially when the biological control agents are numerous enough to minimize pest population. This may not be feasible on tall palms.



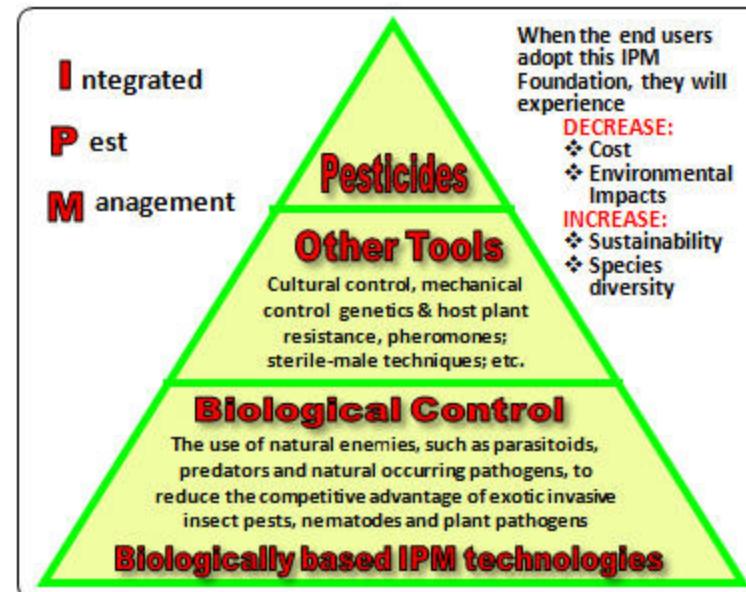
Trunk Injection

This can be done as an emergency measure to control *Brontispa* for tall and mature palms.



FACTORS GOVERNING ABUNDANCE

- Large-scale availability of 2-3 year old coconut palms attracts the pest.
- Dry periods favour the development of *Brontispa* populations.
- The palms grown in poor soil, infested by aleurodids and other pests, inadequately maintained, etc., were more susceptible to attack of *Brontispa*.
- Poorly-grown palms with a less compact heart are more susceptible to *Brontispa* attacks.
- Strong monsoon winds are considered to reduce the influence of parasitoids and predators, which triggers the pest attack.



References:

- CPD Technoguide No. 13, Series of 2010 – Coconut Leaf Beetle
- PCA Brontispa Powerpoint Presentations 2007 and 2008
- PCA DRC and ARC Brontispa Poster 2010
- PCA Brontispa Brochure 2008
- APCC Publication 2005 – Coconut Leaf Beetle

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Coconut Leaf Beetle

Brontispa longissima (Gestro)



PHILIPPINE COCONUT AUTHORITY
RESEARCH AND DEVELOPMENT BRANCH

The Pest - COCONUT LEAF BEETLE

Brontispa longissima (Gestro)

Coleoptera: Chrysomelidae

- The *Brontispa* popularly known as Coconut Leaf Beetle is an invasive pest that causes serious damage to both young and mature coconuts and ornamental palms, drying the young shoots and eventually killing the whole tree.
- Both larvae and adults are destructive, inhabiting the developing and unopened spear leaves of the coconut where they feed on the leaf tissues.
- Damage palms appear burnt at a distance.
- Affects all coconut stages in almost all coconut growing areas in the country

NATURE OF DAMAGE



- The larvae and adult *Brontispa* live in the still-folded heart-leaf of preferably young palms, feed on the mesophyll of both surfaces of the closely oppressed leaflets, gnaw long incisions in the tissues leaving longitudinal white streaks.
- The narrow feeding scars enlarge to form irregular, brown blotches as the frond opens. The brown areas usually shrivel and curl, giving the characteristics scorched, ragged appearance.
- When the insects are numerous, the incisions are so close to one another that whole of the attacked part of the leaflets are similarly injured, and photosynthesis is reduced to zero.
- Severe attack by *Brontispa* can destroy palm leaves, restricts growth and significantly reduce coconut yields.

LIFE STAGES OF *BRONTISPA*

Egg (3-7 days)

- Flat, surrounded by debris and excrement, laid in rows of 2 to 4 (sometimes singly)
- 1.4 mm long, 0.5 mm wide



Larva (23-54 days)

- Whitish when newly hatched later turned yellowish white with prominent caliper-like hooks at the hind end.
- 8-10 mm long, 2 mm wide



Pupa (4-6 days)

- Limited movement, found in between surface of leaflet.
- 9-10 mm long; 2 mm wide



Adult (60-220 days)

- Two colored, orange/brown thorax and brown to dark elytra
- Nocturnal
- Found in unopened leaflet
- 120 eggs on the average
- 7.5-10 mm long, 1.5-2 mm wide



HOST RANGE

Coconut*, Royal Palm*, Areca Palm, Betel Nut, Sago Palm, California Fan Palm, Mexican Fan Palm, Chinese Fan Palm, Fox Tail Palm, Alexandra Palm, Dwarf Date Palm, Nipa, Oil Palm, Nicobar Palm, Carpentaria Palm, Fish Tail Palm, Bottle Palm, Ivory Nut Palm, Several Cycads

*Preferred hosts

BIOLOGICAL CONTROL AGENTS

ENTOMOPATHOGENS (FUNGUS)

- Infect the larva, pupa and adult of *Brontispa*



White Muscardine Fungus
Beauveria bassiana



Green Muscardine Fungus
Metarhizium anisopliae

PREDATORS

- A general predator that preys on young larva of the *Brontispa*



Earwig (*Chelisoches morio*)

EGG PARASITIODS

- Attack the eggs of the *Brontispa*
- Solitary parasitoid (one parasitoid wasp develop inside a host egg)



Ooencyrtus sp.



Haeckelia sp.

LARVAL PARASITOID

- Attacks the larva of the *Brontispa*
- Gregarious parasitoid (many parasitoids develop inside a host larva)



Asecodes sp.

PUPAL PARASITOID

- Attacks pupa of the *Brontispa*
- Gregarious parasitoid (many parasitoids develop inside a host pupa)



Tetrastichus sp.