



Pacific Pests and Pathogens - Fact Sheets

Coconut sexava treehopper (246)



Photo 1. Isolated coconuts growing amongst dense vegetation heavily defoliated by unidentified sexava species.



Photo 2. Unidentified sexava species, showing short wings and long ovipositor. Note, that the length of the antennae are longer than the body of the insect.



Photo 3. Unidentified sexava species; note the long wings.



Photo 4. Numerous adults of unknown sexava species, and damage to oil palm leaves.



Photo 5. Damage to oil palm and banana by sexava in Papua New Guinea.



Photo 6. Oil palm in Papua New Guinea stripped of leaflets by sexava attack.



Photo 8. Sexava damage to banana in Papua New Guinea, by unknown sexava species.



Common Name

Coconut treehopper, long-horned grasshopper. They are also known as katydids or bush crickets.

Scientific Name

Sexava is the name given to a number of species of long-horned grasshoppers belonging to several genera: *Segestes*, *Segestidea* and *Sexava*. Those recorded in Papua New Guinea on coconuts are: *Sexava nubila*, *Segestes decoratus*, *Segestidia leefmansii*, *Segestidia rufipalpis*, *Segestidia uniformis*, *Segestidia defoliaria*, *Segestidia novaeguineae*, and oil palm: *Segestes decoratus*, *Segestidia defoliaria*, *Segestidea novaeguineae*. *Sexava* species are recorded from Solomon Islands.

Distribution

Narrow. The species are recorded from Indonesia, Papua New Guinea and Solomon Islands.

Hosts

Several species of palms are attacked, including betel nut, coconut, nipa, oil palm and sago; other plants attacked are banana, *Heliconia*, *Pandanus*, *Ravenala* (traveller's palm), and sugarcane.

Symptoms & Life Cycle

On coconuts, two types of outbreak are reported: first, localised outbreaks in areas of overgrown coconuts where rainfall is evenly distributed (Photo 1); secondly, widespread outbreaks where rains follow droughts and eggs hatch at the same time.

The insects feed at night and descend to the ground during the day or shelter on the undersides of leaves or at the base of leaves in the crown (Photos 2-4).

Eggs are slender, slightly curved, about 10 mm long, mostly laid in the soil, but also on the butts of fronds or on plants growing on the stems of palms. After about 8 weeks, the eggs hatch. The nymphs are green or brown adults depending on the species, and moult six times over about 3 weeks. Adults live about 110 days. From egg to adult is 30-40 weeks. In some species, males have either long or short wings. In general, flight is poor, but they can run and jump.

Impact

The nymphs and adults occasionally cause severe damage to coconuts and oil palm (Photos 4-6) and bananas (Photos 7&8). The leaves are eaten to the midribs and the insects attack the flowers and young fruits. The damage results in loss of fruits as palms lack the nutrients for their development. If coconuts are defoliated to 70% it takes about 2 years before the palms return to previous yields. Yields begin to be affected when 40% defoliation occurs.

Detection & Inspection

Look for grasshopper-like insects 50-60 mm long (not including the antennae). Look for the antennae that are much longer than the body, a feature distinguishing the long-horned from the short-horned grasshoppers and locusts. Look for the ovipositor of the female which is like a sword with a curved blade.

Management

NATURAL ENEMIES

Egg, nymph and adult parasitoids have been recorded from long-horned grasshoppers. However, egg parasites are thought to be the most reliable as a majority of sexava eggs are laid in the soil. Only the parasitoid *Stichotrema dallatorreanum* is considered to be important; this insect is unusual in that the 1st instar male larvae parasitise ants and the females parasitise sexava species. The sexava attacked in Papua New Guinea are *Sexava nubila*, *Segestes decoratus* and *Segestia novaeguineae*. The parasitoid reduces the number of eggs laid by female sexava, and their lifespan.

BIOLOGICAL CONTROL

As cultural and chemical control measures have proved to be impractical or uneconomical, the research in Papua New Guinea in the last 70 years has been to improve biological control, including the use of mycoinsecticides, but none are available commercially.

CULTURAL CONTROL

Two methods have been suggested, but neither appears practical or economical:

- Place sticky bands of gum resin (Tanglefoot) around the trunks of coconuts.
- Rake and/or hoe the soil beneath palms to expose eggs.

CHEMICAL CONTROL

Insecticides are not appropriate for the management of the long-horned grasshopper as they will delay the return of biological control. The spraying of broad-spectrum insecticides is unacceptable, and trunk injections use organophosphates, many of which have been withdrawn from use.

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Information from Young GR (2001) A review of sexava research and control methods in Papua New Guinea. In: *Proceedings of the sixth workshop for the tropical agricultural entomologists*, Technical Bulletin No. 288, 1998. Darwin. Photos 1-7 Richard Markham, ACIAR, Canberra.

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