Pacific Pests and Pathogens - Fact Sheets

Sugarcane weevil borer (241)

Photo 1. Adult sugarcane weevil borer, *Rhabdoscelus obscurus*.

Photo 2. Abdomen of the sugarcane weevil borer, *Rhabdoscelus obscurus*, showing the colour pattern.

Common Name

Sugarcane weevil borer, New Guinea sugarcane weevil, New Guinea cane weevil borer.

Scientific Name

Rhabdoscelus obscurus

Distribution

Narrow. Southeast Asia, USA (Hawaii) and Oceania. It is native to Papua New Guinea and Irian Java. It is recorded from American Samoa, Australia, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Guam, Marshall Islands,New Caledonia, New Zealand, Niue, Northern Mariana Islands, Papua New Guinea, Samoa, Solomon Islands, Tonga, and Vanuatu.

Hosts

Mainly sugarcane and wild relatives, banana, and palms, including betel nut, coconut, sago palm and oil palm. The original hosts were probably banana and palms.

Symptoms & Life Cycle

The larvae damage sugarcane and palms by boring into the stem to feed on the soft pith, and at the same time packing the tunnels with fibre and waste. In sugarcane, rots occur which reduce the sugar content, and also cause the stems to lodge. The larvae also bore into the stools of ratooned crops. As the larvae grow, they make exist holes or "windows" through the "rind" or "skin" of the stems.

In palms, damage varies with age. In young palms, the larvae tunnel up and down the stem from the entry points, destroying the central parts; in older palms, they tunnel into the leaf bases as well as tunnelling short distances into the trunk. A jelly-like substance occurs in the holes, the trunks split, and the wood becomes stained, especially if there are high numbers of larvae.

The eggs are 1-2 mm long, white and slightly curved; they become opaque as they age. They are laid in cavities made by the female, and in cracks and wounds in stems and leaf bases. Eggs hatch in about 5 days. The larvae are legless, plump, white grubs, 15 mm long when mature, with a red-brown head. There are six larval stages over about 3 months before pupation. The pupae develop in tunnels made by larvae, wrapped in a cocoon of host fibres. After about 20 days, the adults emerge. The weevils are 12-15 mm long, brown to black, with reddish areas on the thorax and wing covers, and long slender snouts. The adults are most active in the evening (hiding under sugarcane leaf sheaths, in damaged parts of stems, or in organic matter on the ground during the day).

They are long-lived (6-10 months), with females laying about 150 eggs.

Weevils spread by flying, rather than carry over from crop to crop. They are also spread in cut pieces of cane used for planting, as well as shredded leaves and stalks used as mulch. Spread also occurs with potted plants of the nursery trade.

Impact

Chewing and tunnelling lowers the amount of juice and its sucrose percentage. The damage to the stems is made worse by secondary rot-causing fungi, e.g., sugarcane red rot, *Colletotrichum fulcatum* (see Fact Sheet no. 221). In Fiji, for example, 2% stem damage causes a loss of 1.5% sugar. In Australia, 32,000 tonnes of cane were lost to the weevil in 1996. Damage has increased, and occurs more often now that the fields are no longer burnt before harvest, crop residues are used as mulch and, perhaps, a change to more susceptible varieties.

The sugarcane weevil borer has become an important pest in Pacific islands in recent yeaes with the increase in the nursery trade and betel nut cultivation. It is now a serious pest of palms spread through the nursery trade. Seedlings and young potted palms are very susceptible to attack, with the weevils attracted to the sugarcane pieces used as mulch.

Detection & Inspection

Look for cane with tunnels partly filled with frass, and which contain cocoons made from stem fibres. Look for characteristic breathing holes through the rind or skin of the stems, about 4-6 mmm diameter, and the jelly-like substance that oozes from the tunnels, made by the larvae. Look for holes in the leaf bases or stems of palms, splitting of the trunk, and staining.

The larvae can be monitored by taking five stalks near harvest from 10 randomly selected stools, and assessing the percentage of damaged stalks. Adult weevils can be detected using split-cane traps; the cane stem sections, 20 cm long, are wrapped in black plastic and hung in the fields, and the number of beetles are counted after 1 week. More beetles are caught if chemical attractants (pheromones) are added.

Management

NATURAL ENEMIES

A tachinid fly, *Lixophaga sphenophor*i, was introduced into Australia and Hawaii from Papua New Guinea and Fiji, and although thought to be a success initially, results have turned out to be disappointing in most sugarcane areas of Queensland. Better results have been achieved in Hawaii. In Queensland, sugarcane is harvested annually, whereas in Hawaii it is every 2 years. Greater success has been reported from the palm industry of north Queensland where high numbers of the fly develop in pupae of the weevil borer.

A large beetle, *Plaesius javanus*, was introduced successfully into Fiji, but failed to establish in Queensland, Australia. The fungus, *Metarhizium anisopliae*, occurs naturally on larvae in Fiji and Papua New Guinea.

CULTURAL CONTROL

Before planting

- Inspect sugarcane cuttings carefully before using them for planting; look for holes made by tunnelling larvae and the windows cut by the larvae through the rind or skin of the stalks.

During growth

- Carefully assess the amount of nitrogen fertilizer needed for the crop; do not apply excess amounts. High rates of fertilizer can result in lodging and softer skin and, consequently, higher numbers of weevil borer larvae.
- Control rats that chew and damage the stems, and other insects that bore into stems and allow places for female weevil borers to lay eggs, and the entry of weevil borer larvae.
- Check all plants entering and leaving palm nurseries for infestations of weevil borers. If seen, spray the plants with insecticide (see below) or destroy the plants.
- Do not use sugarcane leaf and stem pieces in a potting medium or as mulch around the base of potted plants

or inground trees. The female weevils are attracted to the sugarcane pieces.

- Remove and burn old and dead fronds, removing places where weevils hide during the day,
- Do not damage palm stems, or if damage occurs cover with an acrylic paint.

RESISTANT VARIETIES

There are differences between varieties in the number of eggs laid and the time that the larvae take to develop. Varieties that have hard rinds, and higher fibre are more resistant to attack. Those that have growth cracks are more susceptible. Check the varieties that are available in Fiji (Hawaii and Queensland) for tolerance to the weevil borer.

CHEMICAL CONTROL

Chemical control is not recommended because it is unlikely to be economic for sugarcane unless grown commercially. In Australia, fipronil (a systemic product) is registered against the weevil borer applied as a single spray during December to February when the crop has produced the first millable internode of cane. Stools and stalk up to 40 cm is sprayed, plus soil and trash up to 10 cm either side of the stool. It is for situations when weevil borer numbers are high.

The organophosphate insecticide, chlorpyrifos, has been used for the control of the weevil borer in palm nurseries. It has also been used to treat pieces of cane used to bait adult weevils in sugarcane plantations. *Note, chlorpyrifos is under review by the Australian Pesticides and Veterinary Medicines Authority.*

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Information from CABI (2015) *Rhabdoscelus obscurus* (sugarcane weevil borer) Crop Protection Compendium (**http://cabi.org/cpc**); and from Halfpapp KH, Storey RI (1991) Cane weevil borer, *Rhabdoscelus obscurus* (Coleoptera: Curculionidae), a pest of palms in northern Queensland, Australia. Principes, 35(4):199-207. Photos 1&2 Ken Walker (2011) Cane weevil borer (*Rhabdoscelus obscurus*) Updated on 8/18/2011, available online: PaDIL (**http://padil.gov.au**).

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