



Information Sheet

8.4 Leaf eaters

Trash caterpillars

Identification

Trash caterpillars (or trashworms) are the larval stage of various inconspicuous moths. At least seven species are involved, although some eat only the dry trash. One species in particular, *Mythimna phaea*, damages young ratoons (Figure 1). They cause damage only where there is a trash blanket (or other debris, e.g. after floods) in the vicinity of young ratoons, and they do not damage mature cane. They seldom occur in burnt fields, but may do so where there is sufficient debris to afford cover for the caterpillar e.g. where the tops have been windrowed or from scattered tops.

Damage to leaves of young ratoons may be conspicuous, although the caterpillars, which feed only at night, may not be apparent unless the trash is lifted, when they will be seen curled beneath it on the soil surface.

They may occur anywhere that trashing is practiced and are usually first noted in April. They are very seldom seen after the early summer rains begin in November and conditions become humid. Within the winter period two 'waves' of damage may be detected: the first in July and the second in October. Light trap figures of moths caught have confirmed the occurrence of such waves.



▲ Figure 1. The trash caterpillar *Mythimna* spp. feeding on a leaf.

Damage

During daylight, the caterpillars remain inactive beneath the trash blanket. Shortly after nightfall they start feeding on leaves of ratooning cane and continue feeding until shortly before daybreak, when they return to the trash blanket. They may strip the leaves completely, leaving only spiky midribs.

Crop loss

Results of field experiments in which ratooning cane was artificially defoliated in a manner simulating trash caterpillar attack, showed that a severe infestation could cause a yield loss of 18 tons per hectare. Typical infestations are less damaging and do not normally affect the whole field. Under good growing conditions, recovery is rapid and crop loss less severe. However, a setback may occur in the form of a loss of several weeks' growth.

Control

Opinions vary regarding the merits of applied control measures. By the time infestations are spotted, most damage has been done and caterpillar populations are waning, having been brought under control by natural enemies.

Natural enemies: Experiments have shown that about 85% of caterpillars fall victim to natural enemies, which include parasitic flies, wasps, fungi and viruses. Such agents are present in all cane fields, and their numbers build-up rapidly when an outbreak of a suitable host insect (such as the trash caterpillar) occurs. If such agents were not present, the trash caterpillar would be a far more serious pest than it is.

Insecticide: Early stages of infestation are difficult to spot and by the time heavy damage is noted, insecticide applications may do more harm than good. Insecticides will kill those caterpillars that encounter it, but it will also kill predatory and parasitic insects. Trash caterpillar is a difficult target. By day it is well protected by the trash blanket, and the application of insecticide by night, although possibly effective, is inconvenient to implement. No insecticide is registered for trash caterpillar control and insecticide applications are not recommended for fear of exacerbating the problem by killing natural enemies. Although of common and regular recurrence, trash caterpillar is rarely a serious pest. The agronomic benefits of trashing generally outweigh the caterpillar hazard which may result.

Armyworm

Identification

Armyworm moths are dark coloured, with brown to black forewings and white hindwings. The larvae, which attack the leaves of young cane, and especially young plant cane, are green and black in colour with longitudinal black stripes and a green underside (Figure 3). They are gregarious and are usually present in large numbers. A non-gregarious phase also occurs in non-outbreak years. Their larvae are cryptically coloured.

Figure 2. Armyworm larva feeding on sugarcane leaf. ►



Biology

Adult moths fly vast distances but are at the mercy of winds, so egg-laying may be concentrated in particular areas and result in the production of countless progeny. Eggs are laid in masses of one or more layers on leaves and covered with hairs from the females. The emerging caterpillars move en masse across the soil in search of grasses or other narrow-leaved plants on which they feed.

Damage

Mature cane is seldom severely damaged, but young plant crops may be completely defoliated. Outbreaks occur in late summer when growth is usually good, so that the sugarcane usually recovers quickly. However, the destruction of the crop canopy may necessitate additional weeding or herbicide application.

Control

Armyworm is attacked by a variety of natural enemies, which often curb infestations. The insect is susceptible to many insecticides, however, care must be taken when using an insecticide as none are registered for control of armyworm on sugarcane.

Locusts and Grasshoppers

Although many grasshoppers hop on and off sugarcane plants and may nibble the leaves, there are four species in particular that may cause conspicuous damage.

Red locust (*Nomadacris septemfasciata*)

Identification

The red locust was conspicuous 50 years ago when swarms occurred in Natal, but it is not at present a recognised pest of cane. However, locust plagues occur in cycles and it is possible that the red locust could once again occur in damaging numbers. Adults are large, 50–60 mm long. The tibia of the hind legs are reddish, and the base of the hindwing is characteristically red. There is a stout spine between the bases of the forelegs (Figure 3).



Figure 3: The red locust, *Nomadacris septemfasciata*. ►

Biology

The main breeding grounds of this large grasshopper-like insect are in northern Zambia and southern Tanzania, where it periodically swarms and migrates.

The young hoppers are flightless. They move about in large bands and are voracious feeders. They develop into winged adults, form swarms and may travel vast distances. Eggs are laid in pods containing 20 to 100 each with 3–4 pods per female. They hatch in approximately 30 days. Hoppers emerge from November through to January and the first adults appear after about two months (February and March). For approximately eight months adults exist in a reproductively immature state (reproductive diapause). Mating and egg laying coincided with the commencement of summer rains in October/November. The adults live for approximately nine months, and there is only one generation per year.

Control

In the event of an invasion, the problem would almost certainly be tackled on a national, if not an international scale, and aircraft would be used to apply suitable insecticides to the swarms.

Tropical migratory locust (*Locusta migratoria migratorioides*)

Identification

Similar in size and biology to the red locust but generally grey, rather than conspicuously red. There is no peg-like process between the bases of the foreleg, and the under-surface of the thorax is covered with fine 'hair'. In recent years, this locust has been seen in quite large numbers in cane fields in northern KwaZulu-Natal, but has not been associated with widespread damage (Figure 4).



Figure 4. Tropical migratory locust, *Locusta migratoria migratorioides*. ►

Control

Same as for the red locust.

Elegant grasshopper (*Zonoceros elegans*)

This large, non-flying grasshopper can become seasonally abundant on the perimeters of cane fields.

Identification

These insects are conspicuously coloured, blue-grey with yellow bands (Figure 5). They feed, usually harmlessly, on cane foliage.



Figure 5. The elegant grasshopper, *Zonoceros elegans*. ►

Control

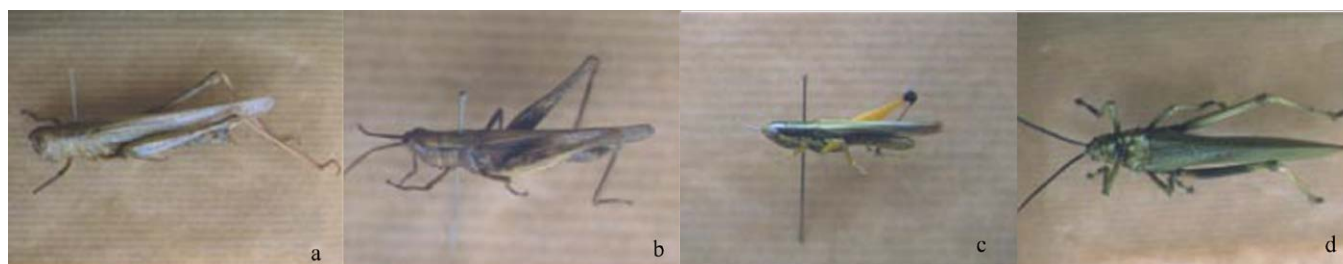
In South African sugarcane, it has never been necessary to apply control measures for this grasshopper.

Large grasshoppers (e.g. *Cataloipus* spp.)

Outbreaks have been seen in and around cane fields, and on occasions the cane has appeared to be invaded by minor swarms. However, such infestations have been transient, and applied control measures have in the past not been necessary.

Other Grasshoppers

More recently, a number of grasshoppers have been associated with ever-increasing areas of damage to sugarcane in the northern parts of the industry. These include *Afroxyrrhopes procera*, *Duronia curta*, *Oxya hyla* and *Phymateus viridipes* (Figure 6).



▲ Figure 6. Grasshoppers *Afroxyrrhopes procera* (a), *Duronia curta* (b), *Oxya hyla* (c) and *Phymateus viridipes* (d).

Control

Locust swarms are normally treated on a national or international scale. It may be possible to treat local outbreaks of grasshoppers with insecticides, however, rates will vary depending on the stage of the target grasshoppers (smaller stages require lower doses to kill). To be effective, insecticides must be properly targeted, and scouting is essential to identify areas to treat. Application should be done early in the morning when the grasshoppers are sluggish. It is imperative to note that no insecticide is yet registered for grasshopper control in sugarcane in South Africa, and due care must therefore be taken.

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