# Information Sheet

8. PESTS

## 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. They cause damage only where there is a trash blanket (or other debris, e.g. after floods) in the vicinity of young rations, 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.

### *Damage caused*

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 set-back may occur in the form of a loss of several weeks' growth.

### *Control measures*

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.

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

**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 application may do more harm than good. Insecticide will kill those few caterpillars that come into contact with it, but it will also kill predatory and parasitic insects. In field experiments it was found that any one of four insecticides tested gave some measure of control where contact was made, but that the operation was impractical for several reasons. 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, but where satisfactory contact is made any common insecticide should kill them. However, **insecticide application is 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 green underside. 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.

### *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 check infestations. The insect is susceptible to many insecticides which may be applied to advantage between the scene of infestation and an undamaged crop. 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 come

***Figure 2. Armyworm larva feeding on a sugarcane leaf.***

in cycles and it is possible that the red locust could once again occur in damaging numbers. In 1932 swarms invaded Natal and attacked sugarcane, and in subsequent years until 1945 further swarms and their progeny continued to damage the crop. As recently as 1982, a helicopter was used to spray a swarm damaging sugarcane in Swaziland (Sugar Journal, October 1982).

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.

### 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 100 each, 3-4 pods per female. They hatch in about 30 days. There are six to seven stages in the hopper (flightless) stage. The hoppers take from two to three months to develop. The adults live for about nine months, and there is only one generation per year.

### Control

In the event of another 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.

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

## 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 undersurface 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 Natal, but has not been associated with widespread damage (Figure 4).

### Control

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.

### Control

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

## Large grasshoppers (e.g. *Cataloipus* sp)

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.

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

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

## Other grasshoppers

More recently, a number of grasshoppers have been associated with ever-increasing areas of damager to sugarcane in the northern parts of the industry. These are:

*Afroxyrrhepes procera, Duronia curta, Oxya hyla and Phymateus viridipes.*

### *Control*

As mentioned, locust swarms are normally treated on a national or international scale. However, it may be possible to treat local outbreaks of grasshoppers with the insecticide deltamethrin. Rates vary from 20 to 30 grams active ingredient per hectare, 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.

No insecticide is yet registered for grasshopper control in sugarcane, and due care must therefore be taken.

***Figure 5. Grasshoppers* Afroxyrrhepes procera *(top left)*, Duronia curta*( top right)*, Oxya hyla *(bottom left) and* Phymateus viridipes *(bottom right)*.**

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