ENTOMOLOGY BULLETIN: NO. 42

PESTS OF CUCURBITS – 3. MINOR PESTS OF CUCURBITS

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INTRODUCTION

Cucumbers, pumpkins, watermelons, zucchini (young marrows) and gourds are all cucurbits. Cucurbits are vegetables which belong to the family Cucurbitaceae. Several insects can be found feeding on cucurbits but the damage they do depends on the type of plant. Pumpkins and gourds are not damaged much; cucumbers are more affected; watermelons and rock melons can be badly damaged by insects.

The pests covered in this bulletin are:

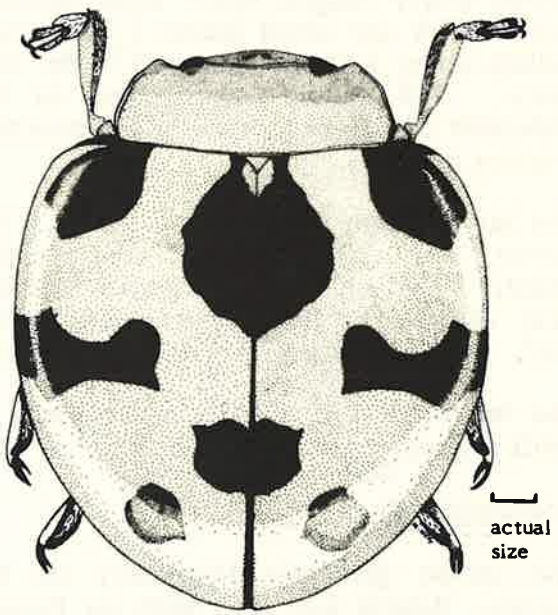
Leaf eating ladybirds
Heliothis
Aphids
Halticus
Fruit flies
Giant African Snail

LEAF EATING LADYBIRDS

Taxonomy**

Three or more species of ladybirds can be found feeding on cucurbits. The commonest is *Epilachna cucurbitae* (cucurbit leaf-eating ladybird beetle). The scientific names of the other two species are not properly known yet. They are called the 28-spot leaf-eating ladybird beetle and the doryca leaf-eating ladybird beetle in this bulletin.

Note: Leaf-eating ladybird beetles can be distinguished from beneficial ladybirds (those which eat insect pests such as aphids) because the elytra (wing cases) of the leaf eaters are dull and covered with fine hairs and the elytra of the beneficial ladybirds are bright and shiny with no hairs.



The cucurbit leaf eating ladybird

Description and biology

The cucurbit leaf-eating ladybird beetle has orange-red elytra (wing cases) with black zig-zag markings; the 28-spot ladybird has yellow-orange elytra with 28 black spots; the doryca leaf-eating ladybird has orange-red elytra with black zig-zags and spots.

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** *The science of describing and naming plants and animals. Here it means the scientific names given to ladybirds.*

All the life stages of these ladybirds can be found on the leaves and flowers of cucurbits.

The biology of the common leaf-eating ladybird beetle has been studied in detail. The life cycle of the other 2 species is probably very similar.

The eggs are yellow and long (like needles). They are laid in groups of about 14 on the underside of the leaves. The larvae (early stages) hatch after about 4 days. They are small (about 7 mm long) yellow-white and the covered with stiff hairs. The young larvae feed on the underside of the leaf making a distinctive circular pattern.

The larval stage lasts about 19 days. The larvae then pupate (enter the resting phase). The pupa is a hardened, rounded case attached to the under side of the leaf. The adult emerges after about 5 days.

The length of the life cycle from egg to adult is about one month.

Economic importance

The larvae generally feed only on the leaves. Adults will feed both on flowers and on leaves. Feeding damage caused by adults looks similar to the damage caused by the larvae.

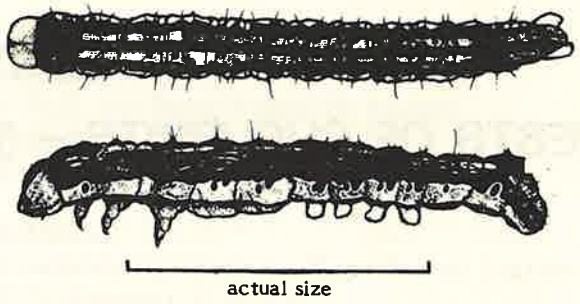
Chemical control

Damage by these ladybirds beetles is not usually serious enough to require chemical control. Sprays applied to control pumpkin beetles (see Entomology Bulletin No.40) will also kill the ladybird beetles.

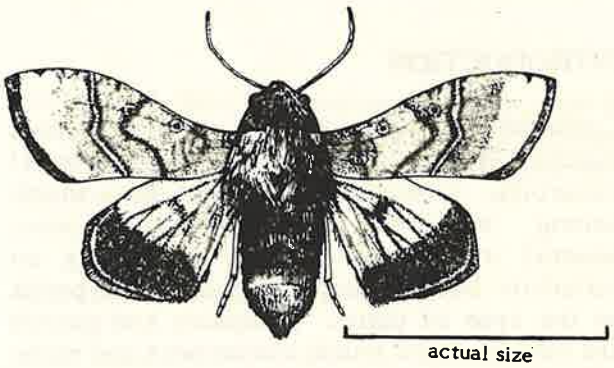
HELIOTHIS

Economic importance

Heliothis caterpillars (early stages) are described fully in Entomology Bulletins 34 and 35. They feed inside the flowers of cucurbits but do not cause serious damage. It is not necessary to use chemicals to control heliothis larvae on cucurbits.



Heliothis caterpillar, top and side views



Heliothis - the adult moth

APHIDS

Description and biology

Aphids (*Aphis gossypii,* sometimes known as greenfly), can be a serious pest on cucurbits. They are small (1-2 mm long) greenish-black insects, generally found on the growing shoots and young leaves. As far as is known, only females of this aphid exist.

Infestations start when a winged female lands on a plant and starts producing young aphids (known as nymphs), which are born alive. The adult female may live for 2 to 3 weeks and produce 2 to 4 nymphs a day. The nymphs take 2 to 4 weeks to grow to full size. They will usually develop into wingless adults. The adults produce live young without mating.

After a few generations, and when the plant is dying, or population levels are high, winged females are formed from the nymphs. These then fly off to infest new plants.

Economic importance

The adults and nymphs feed by piercing the plant leaf or shoot and sucking up the plant juices. These juices are very rich in sugar. some of the sugar is passed through the aphid and the fluid is known as 'honey dew'.

The honey dew spreads over the plant and a black sooty mould grows on it. The mould stops the plant using sunlight to make its food (photosynthesis). Ants like to feed on the honey dew and can usually be seen with the aphids.

Aphids can cause serious damage. If large numbers of aphids are feeding on a plant the shoots and young leaves become twisted and the plant is stunted (short).

Aphids can also carry and spread plant diseases. They do this when they feed on a sick plant and move to feed on another, healthy plant. They carry the disease in their saliva.

Chemical control

If aphids are causing leaf damage they can be controlled using 0.01% dimethoate.

If flowering has started, cucurbits MUST ONLY be sprayed in the afternoon. By spraying at this time you will not kill the bees that visit and pollinate the open flowers in the morning. If you do spray the open flowers you may reduce the harvest you get from your crop.

Dimethoate is sold as 'Rogor 3 OEC'. To make enough spray for a 15 litre knapsack, mix together:

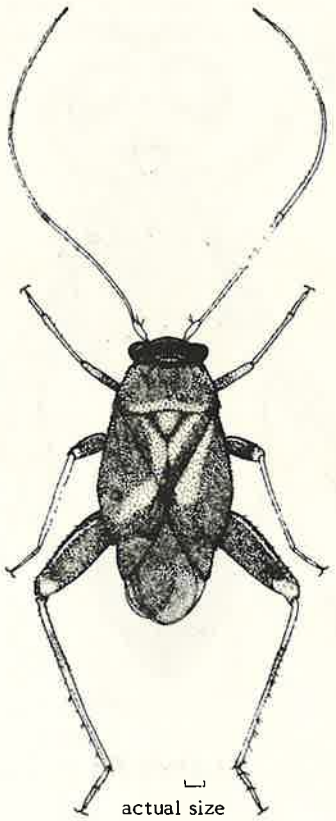
7.5 ml Rogor 3 OEC 15 litres of water

If there are fruit on the plant, you must wait 7 days before eating them. For further details of the safe use of pesticides see Rural Development Handbook Number 18, from DPI.

HALTICUS

Description and biology

Halticus is a tiny black bug with large back legs. It can jump. It is also found on sweet potato and is known as the sweet potato mirid. See Entomology Bulletin No 18 for details of description and biology.



Adult Halticus

Economic importance

It can cause serious damage to cucumbers by sucking the sap of the plant.

Chemical control

To control *Halticus* use acephate 0.1% or demithoate 0.01%. To prepare acephate 0.1%, mix together:

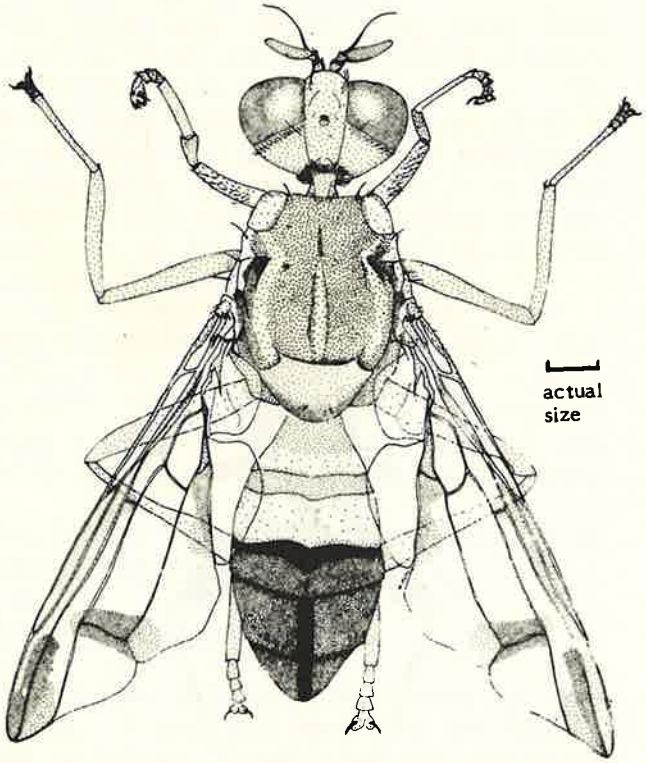
20 g Orthene 75% 15 litres water

To prepare dimethoate 0.01%, mix together:

7.5 ml Rogor 3 OEC 15 litres of water

FRUIT FLIES

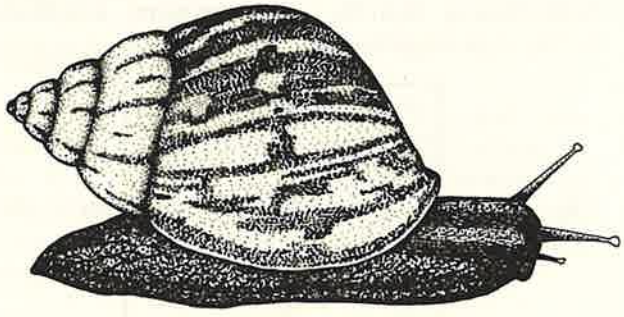
Two species of fruit fly attack cucurbits in Papua New Guinea. The damage is done by the larvae (early stages) infesting fruit. For a detailed description and control measures see Entomology Bulletin No. 19.



A fruit fly

GIANT AFRICAN SNAIL

This is a large snail which has been introduced into Papua New Guinea and is found in the lowlands. It can cause severe losses to cucurbits, eating seedlings, the stems of young plants and maturing fruit. For a description and details of control measures see Entomology Bulletin No. 13.



The giant African snail - actual size

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FURTHER INFORMATION

Further information on insect pests of cucurbits can be obtained by contacing your nearest D.P.I. entomologist. Entomologists are based at:

PORT MORESBY
D.P.I., P.O. Box 417, KONEDOBU
Tel: 214699 Ext 255

LAE
Bubia Agriculture Research Centre
P.O. Box 1693 LAE
Tel: 424933

MOUNT HAGEN
Kuk Agricultural Research Station
P.O. Box 339, MOUNT HAGEN
Tel: 551377

KIMBE
P.N.G. Oil Palm Research Station
P.O. Box 165, KIMBE
Tel: 935206

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Copies of this Entomology Bulletin can be obtained from: The Publications Officer, Publications Section, D.P.I., P.O. Box 417, Konedobu.

(Illustrations: R.E. Sutherland (Heliothis, *Halticus*, giant African snail)); Michelle Kelly (leaf-eating ladybird, fruit fly))