

## Common Insect Pests of Cucurbits

H. Brown, Entomology, Darwin

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### INTRODUCTION

Cucurbits are a major horticultural crop in the Northern Territory and are susceptible to many insect pests. These include cucumber moths, pumpkin beetles, two-spotted mites and aphids. Other pests such as *Thrips palmi* (refer to Agnote I45, No. 753: Control of the melon thrips *Thrips palmi*), Poinsettia Whitefly (refer to Agnote I27 No. 649: Poinsettia Whitefly) and ginger ants (refer to Agnote I56 No. 546: Ants in the Household and Backyard) may also cause problems. Further information on all pests and their control in cucurbits is available from the Entomology Section at Berrimah Agricultural Research Centre.

Growers should recognise these pests and monitor their crops regularly for all of the species mentioned in this Agnote. Infestations will be easier to control if they are detected at an early stage. It is suggested that growers walk through their crops and monitor numbers of pests and beneficial insects at least twice a week. The Entomology Section can provide advice on developing monitoring and recording techniques. These techniques will assist growers in initiating management practices to reduce damage to their crops when required. Natural enemies can control some pests. If chemical sprays are required, "soft" chemicals, such as potassium soaps should be considered. The grower can also choose to spot-spray or to apply a complete cover spray as necessary.

Since cucurbits depend on bees for pollination, it is recommended that insecticide use be kept to a minimum during the flowering period. Further information on the effects of pesticides on bees is provided in Agnote K12 No. 677 Pesticides - Hazard to Honeybees.

### CUCUMBER MOTH (*DIAPHANIA INDICA*)

#### Description and Life Cycle

Adult moths have a wingspan of about 20–25 mm. The wings are white, with a dark brown band along the fringe. The adult moth lives for one to two weeks and during this time the female may lay many eggs on the underside of leaves and on the soft stems of host plants. The adults are usually active at night. The eggs are creamy white in colour and 1–2 mm long. They can take from one to seven days to hatch. The larvae are pale to dark green with a white stripe running along both sides of the body. They feed on leaves, soft stems and fruit, sometimes building a silken canopy for protection and under which to feed. Larvae grow to 15 mm long in about three weeks, at which time they are ready to pupate. The immobile pupae are 10–15 mm long and usually found in the soil, under fruit or debris on the ground, or sometimes in a silken canopy in the leaves. Pupation lasts up to two weeks before the adult moths emerge. The duration of each life stage can be affected by climatic conditions and the quality of the cucurbit crop.





**Figure1.** Cucumber moth adult and larva

### **Damage**

The caterpillars feed on the leaves, soft stems and fruit of a variety of cucurbits, but the young succulent leaves are favoured. They can destroy large sections of plants and bind parts of the leaves together with silk and faeces. On occasion, the larvae have been known to damage the flowers. After the fruit starts to develop, the larvae can chew shallow holes in the surface, especially where the fruit is in close contact with the ground. They often pupate in these holes. This damage causes blemishes in the fruit, which downgrades the quality.

### **Monitoring**

Regular checks should be carried out on crops twice a week to detect larval populations. Monitoring should include examining the underside of the leaf surface, soft stems and fruit surfaces in contact with the ground.

### **Control**

Control should be directed at small larvae as they are easier to kill. For effective control, it is essential to obtain a good spray cover onto foliage throughout the crop including the underside of the leaves. The recommended insecticides against cucumber moth are either *Bacillus thuringiensis* or trichlorfon. *B. thuringiensis* is a biological insecticide and takes longer to kill the larvae but is more environmentally friendly.

## PUMPKIN BEETLE (*AULACOPHORA HILARIS*) AND PLAIN PUMPKIN BEETLE (*A. ABDOMINALIS*)

### Description and Life Cycle

There are two types of pumpkin beetles which can cause damage to cucurbit crops. They are of similar size (6–7 mm) and colour (yellow/orange). The pumpkin beetle (*A. hilaris*) is distinguished by four large black spots on the back. The plain pumpkin beetle (*A. abdominalis*) does not have these black spots. The adults lay their eggs into the soil amongst the roots of the plants where, once hatched, the creamy white larvae will feed until they pupate and emerge as adults.



**Figure 2.** Plain pumpkin beetle adult on cucurbit leaf

### Damage

Adult pumpkin beetles feed on the leaves of cucurbits, chewing large holes and often leaving only the veins of the leaves. Young seedlings are particularly susceptible to damage as small numbers of beetles can cause total defoliation and death. Mature plants can sustain a larger amount of damage before yields start to decline. Larval damage to the roots is usually minimal and the plants are rarely affected. Pumpkin beetles are usually found in aggregations within the crop on both young and old leaves.

### Monitoring

Seedlings should be checked twice a week and treated if pumpkin beetles are seen. Older plants should be monitored and treated if defoliation is severe.

### Control

Recommended control is by the use of trichlorfon or carbaryl. Carbaryl is effective but should not be sprayed on flowering crops, as it is toxic to bees.

## TWO-SPOTTED MITE (*Tetranychus urticae*)

### Description and Life Cycle

Two-spotted mites (TSM) are barely detectable with the naked eye. They are pale yellow in colour with two dark spots on the body. When colonies of TSM are in large numbers they spin fine silky webs for protection from predators while they feed and shelter. They also move from leaf to leaf or from one plant to another. During unfavourable or cold weather conditions they may change to an orange/red colour and are then commonly known as red spider mites. TSM eggs are small and round and are laid one at a time near veins on the under surface of leaves.



**Figure 3.** Two-spotted mites on a cucurbit leaf

### **Damage**

TSM damage is more common during the hot dry weather associated with the NT dry season. The mites feed on the underside of the leaves by piercing and sucking the leaf surface. Damage is first noticed as pale or bronzed areas along the midrib and veins of the leaves. When infestations are severe, the leaves become mottled taking on a silvery-yellow appearance and can prematurely fall from the plant.

### **Monitoring**

The crop should be checked at least twice a week using a magnifying glass, especially on the underside of the leaf as mite damage or presence is not always noticeable on the top of the leaf.

## **CONTROL**

### **Biological Control**

The predatory mite *Phytoseilus persimilis* can be used to effectively control TSM on cucurbits. These predatory mites are available from commercial suppliers. The predatory mite feeds exclusively on TSM and under the right circumstances can rapidly reduce the TSM populations to very low levels. Ten thousand predators over 200 square metres of crop should be released at the first sign of TSM. Information about chemical application and compatibility with predatory mites is available from commercial suppliers.

### **Sprays**

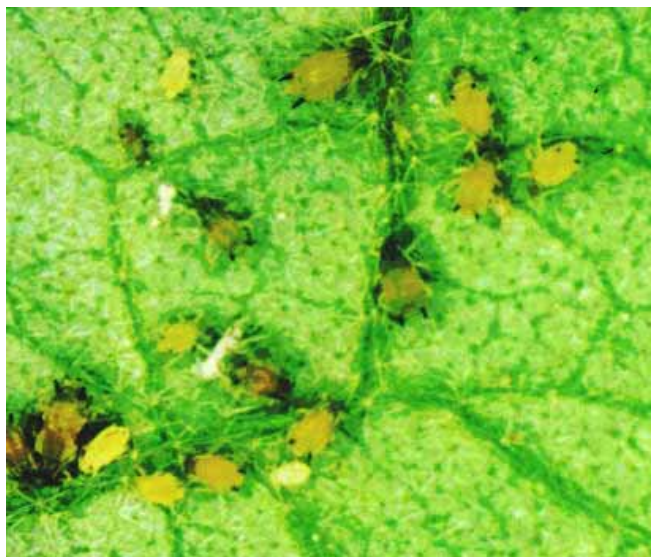
There are a number of miticides recommended for use on cucurbits against TSM. TSM can be controlled with potassium soap, or the miticides dicofol or a mix of dicofol and tetradifon. Tetradifon controls eggs as well as the adults and nymphs, whereas, dicofol controls only the adults and nymphs. Before spraying, the grower should realise that spraying may kill natural predators and mite numbers may resurge. Miticides are effective although frequent use can cause a build-up of resistance in mites.

## **MELON APHID (*Aphis gossypii*)**

### **Description and Life Cycle**

Melon aphids are small, soft-bodied insects, pale green to yellow in colour. The adults may be winged or wingless and the females are more numerous than the males. Female melon aphids can produce eggs or live young. These features and their short life cycle enable populations to build-up rapidly.

### **Damage**



**Figure 4.** Melon aphids on an eggplant leaf

Melon aphids usually feed on the underside of leaves but may attack the soft growing tips. They suck the juices from the leaves and tips, causing leaf and tip curl, distortion and premature death of the leaf or growing tip. Melon aphids leave a sticky substance called honeydew on the leaves and growing tips, which can promote the growth of sooty mould. Ants are sometimes seen when aphids are present as they tend the aphids and feed on the honeydew. Melon aphids usually aggregate and many may be found on just a few leaves. In severe cases, the crop may be destroyed. A more important aspect of the damage caused by melon aphids is that they may transmit damaging plant viruses.

### **Monitoring**

Melon aphids have the ability to increase in numbers at a rapid rate and this must be considered when monitoring for this pest. Plants should be checked at least twice a week with special attention given to the under surface of the leaves. Most problems occur towards the end of the growing season.

### **Control**

Aphids can be controlled with potassium soap, dimethoate, maldison, petroleum oil or primicarb.

Further information on cucurbit pests and their control can be obtained from the Entomology Section at Berrimah Farm, Department of Primary Industry, Fisheries and Mines by phoning 8999 2311.

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