

## **CITRUS FLOWER MOTH**

*Prays citri* (Millière)

### **1 PEST PROFILE**

#### **1.1 Distribution and status**

The citrus flower moth, or lemon borer moth, occurs throughout southern Africa. It is historically a sporadic and minor pest on the flowers of lemons and limes. However, in recent years it has become a more regular pest, particularly causing damage to fruit up to golf-ball size.

#### **1.2 Description**

Citrus flower moth adults are 3.6 to 4.5 mm long. Their forewings are grey-brown, dotted with many spots of unequal sizes and the hind wings light grey and without spots. The female usually deposits her eggs on flower buds. The eggs are 0.2 mm long and slightly oval and white or creamy-white in colour. The larvae penetrate into the buds and feed on them. They vary from light grey or greenish to brown. When full grown they are 4.2 to 5.5 mm long and semi-transparent. Pupation occurs among damaged flowers or leaves. The pupa is chocolate brown.

#### **1.3 Infestation sites on tree**

Citrus flower moth larvae generally infest the flowers of particularly lemons and limes, although not exclusively these cultivars. Attack usually occurs before the flowers open. Eggs of a second generation can be laid on fruitlets, usually not larger than golf ball size. Larvae hatch from the underside of the egg, thus penetrating directly into the fruit. The larvae do not penetrate very far before they either exit the fruit or are killed by gum exudation or acidity.

#### **1.4 Damage**

##### **1.4.1 Symptoms**

Citrus flower moth larvae are particularly destructive to blossoms and young fruit which occur in spring and mid-summer. The injury is caused by the larvae eating into the flower organs or by webbing them together. Damaged flower buds and flowers quickly wilt and are

shed.

Citrus flower moth eggs, laid on fruitlets, desiccate and become white, appearing similar to red scale white caps. Penetration of the fruit by the neonate larva is generally very superficial and is often marked by gumming of the fruit. Penetration marks are initially fairly small, but once the fruit matures, they appear as brown necrotic scars, which can lead to the fruit being downgraded. This damage is not dissimilar to some leafhopper damage. However, the egg shell will usually be noticeable in the centre of the scar, which will be an indication that the damage is caused by citrus flower moth. Severe levels of infestation can cause substantial fruit drop and a reduction in the crop. Older larvae can consume entire blossoms and pea-sized fruitlets.

##### **1.4.2 Seasonal occurrence**

Citrus flower moth can be a pest whenever trees (usually lemons) are in blossom and for a short period thereafter.

### **2 MANAGEMENT ASPECTS**

#### **2.1 Infestation/damage assessment**

##### **2.1.1 Inspection**

During spring, blossoms should be inspected for the presence of or damage by, citrus flower moth larvae. This can be done in conjunction with scouting for other pests, such as bollworm or evaluation of blossom malformation by bud mite. A pheromone lure is commercially available and can be used either in a delta trap or a bucket trap. Although no threshold for intervention has been determined yet, it has been established that unacceptable levels of infestation of blossom are associated with extremely high trap catches.

##### **2.1.2 Treatment threshold**

As this pest has historically been of minor importance or sporadic in nature, no thresholds have been defined for the timing of treatments. However, treatments should be applied against the first generation of larvae which attacks the blossom. This is in order to prevent the development of a second generation which

could attack the small fruit. Effective control of eggs laid on the fruit by this second generation is very difficult. As hatching larvae penetrate directly from the floor of the egg into the rind of the fruit, they will not be directly exposed to spray residues.

## **2.2 Control options**

### **2.2.1 Biological**

There are a number of larval parasitoids of citrus flower moth. Of these, *Chelonus* sp. is the most important.

### **2.2.2 Cultural**

There are no cultural options that can be used to influence the presence or extent of citrus flower moth infestations.

### **2.2.3 Plant protection products**

No plant protection products are registered for the control of citrus flower moth. Historically it has been rare for control of this pest to be necessary. However, this has changed somewhat of late. Citrus flower moth will be easily controlled with any organophosphate, carbamate or pyrethroid used for the control of other pests at that time. *Bacillus thuringiensis* (Dipel) is used in certain European countries for controlling citrus flower moth. Trial work in South Africa has confirmed this efficacy. Once eggs have been laid on fruit, achieving satisfactory control is difficult. Trials revealed better results with Alsystin than with any other product.