

## WAXY SCALE

*Ceroplastes brevicauda* Hall  
*Ceroplastes destructor* Newst.

### 1 PEST PROFILE

#### 1.1 Distribution and status

Waxy scale occurs in most of the citrus production areas. It is rare in the Olifants River Valley (Western Cape). Two species, *Ceroplastes brevicauda* and *C. destructor* occur in southern Africa on citrus and various indigenous plants. *C. brevicauda* is the most widespread species and adult females are about half the size of adult *C. destructor*. Waxy scales are usually well controlled biologically and infestations of commercial importance are mostly caused by incorrect selection of plant protection products.

#### 1.2 Description and infestation on the tree

Depending on the relevant stage of development, waxy scale occurs on leaves and twigs in the outer foliage canopy. Adult waxy scale females of both species are covered with a thick wax layer 4 to 10 mm in diameter. Males do not occur and females reproduce parthenogenetically. Live, immobile females occur on green twigs. A female can produce 800 to 3 000 eggs under her body, after which she dies. The incubation period of eggs is about two weeks and they give rise to dark red crawlers which are about the size of a pinhead.

Crawlers move to the leaves and settle temporarily along the dorsal midrib where they eventually moult to form second instar nymphs. The nymphs begin exuding wax while on the foliage and this gives them a star shaped appearance. Thereafter they migrate to green wood where they settle and eventually give rise to the adult female.

#### 1.3 Damage

##### 1.3.1 Symptoms

Waxy scale is generally regarded as a minor, sporadic pest on citrus. It is a honeydew-producing insect which leads to the formation of sooty mould on foliage and fruit. Heavy

infestations can cause twigs in the outer foliage canopy to have a white appearance. In these circumstances the copious amounts of honeydew produced result in severe growth of sooty mould, with the result that trees and crop have the general appearance of being white and black with little green visible. Consult the section on SOFT SCALES in regard to the effect of sooty mould on citrus trees.

##### 1.3.2 Seasonal occurrence

Two generations characterised by definite crawler movement to foliage occur during November to December and June to August. In the Cape areas the crawler movement to foliage can be more protracted than in the warmer subtropical areas. Both generations are of economic importance and can result in sooty mould damage.

### 2 MANAGEMENT ASPECTS

#### 2.1 Infestation/Damage assessment

No distinction need be drawn between bearing and non-bearing trees.

##### 2.1.1 Inspection

As soon as the nymphs and subsequent females on twigs are covered with a continuous waxy layer they are well protected from spray treatments. When treatment is required it is therefore of great importance to ensure that it is applied while the nymphs on foliage are still susceptible to such applications. After waxy scale has been noted in an orchard it must be inspected at weekly intervals to determine when the treatment-susceptible first and second instar nymphs are present on foliage. These inspections are particularly important during the periods November to January and June to August. They must be conducted on an individual orchard basis because the presence of the second instar nymphs on foliage can vary as a result of both orchard topography as well as climate. During mid-summer these nymphs only remain on the foliage for about two weeks and this severely limits the time available to apply treatment. By contrast, during winter the nymphs remain on foliage for about six to eight weeks and it is

easier to plan and execute a treatment if it is required.

**2.1.2 Treatment threshold**

There is no fixed infestation threshold to indicate the need for a treatment. The fairly general presence of infested twigs on trees can be regarded as a potential infestation hazard requiring treatment. The more frequently that treatments are applied for other pests in such an orchard, the greater the prospect that they will eliminate the natural enemies of the scale and enable it to multiply unchecked.

Product	Dosage/100 ℓ water
Oil (narrow distillation range)	1.0 - 1.4 ℓ (depending on grade & time)
Lannate SL	115 ml
Lannate SP	25 g
Suprathion 400 WP	100 g
Ultracide 420 EC	150 ml

In research, mevinphos EC at 133 ml/hl was as effective as Ultracide at 150 ml/hl.

**2.2 Control options**

**2.2.1 Biological**

Many parasitic wasps attack waxy scales. The most abundant parasitoid is *Tetrastichus ceroplastae*, a small parasitoid (approximately 1 mm in length) characterised by being entirely black. Predatory Lepidoptera larvae (*Eublemma* spp.) also attack these scales. The pest is usually under good biological control and problems most frequently arise when treatments for other pests upset its biological balance. All measures that contribute to the biological control of other pests will have a positive contribution to make to the similar control of waxy scale. Ant control is important.

**2.2.2 Cultural**

There are no cultural options that can be used for the control of waxy scale. However, unmown, natural ground covers in the interrows may benefit the natural enemy complex. Where ant control is implemented with trunk barriers as a means of promoting the biological control of scale, trees will need to be skirted and weeds controlled below the trees.

**2.2.3 Plant protection products**

One of the following treatments can be applied as a medium cover film spray to the infested foliage canopy, but are only effective before the scales develop complete waxy coverings.