



DOVE
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Information

Biological Control - LEAF HOPPER

The two most common species of leafhopper to appear in glasshouse crops are the glasshouse leafhopper (*Hauptidia macroccana*) and the Chrysanthemum leafhopper (*Eupteryx melissae*). These pests have become much more of a problem since biological control has led to a reduction in pesticide use. It has a wide host range including tomatoes, cucumbers, herbs and many ornamental species.

All stages of the pest feed on the underside of the leaf. The characteristic symptom of feeding is irregular clusters of white spots that go right through the leaf from the upper to the lower surface. If damage becomes severe the spots may join together to form large bleached areas sometimes covering the whole leaf. In common with whitefly and aphids, leafhopper produces honeydew on which sooty moulds can grow, but this is only a rare problem.

Cast skins of the insect can often be found on the under surface of affected leaves and may also lead to confusion with whitefly or aphid.

LIFE CYCLE OF LEAFHOPPERS

The life cycle can last from 25 days in the summer to 85 days in the winter. Eggs are laid in slits in the veins of leaves and hatch after about 17 days at 8°C. There are 5 nymphal stages, which take 42 days to adult emergence at this temperature. Adults are slender, white and about 4 - 5mm long. They readily jump and fly when they are disturbed. While young stages are similar in appearance to adults they do not have wings and therefore are less mobile.

BIOLOGICAL CONTROL

Anagrus atomus is a very small wasp which parasitises the egg stage of the leafhopper. *Anagrus* introductions can give a reduction of leafhopper populations when it establishes naturally in a crop from outside. However, in practice it usually comes into glasshouse or tunnel too late for satisfactory control.

The wasp lays its eggs in the leafhopper eggs that are within the leaf veins. Parasitised eggs turn orange and can be seen through the plant tissue.

The larva and pupa develop inside the leafhopper egg and parasitised eggs turn red as the wasp reaches the end of its incubation (about 7-10 days before the adult wasp emerges). Adult females survive for a few days and the whole life cycle takes about three weeks at 20°C.

Use plant protection products safely. Always read the label and product information before use

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Rates of introduction of *Anagrus* will depend on the levels of leafhopper but as a guide use the rate of 1 wasp per m² with two introductions 2 weeks apart for 6 weeks or until the parasite is established. Introduction of the predator when the pest is first seen will help prevent build up of leafhopper.

RECOMMENDATIONS

Anagrus is supplied in units of 100 as parasitised leafhopper eggs and to provide ideal conditions for introduction of the predatory wasp, place them in humid situations such as thick foliage. You can use damp kitchen paper in a seed tray positioned in a shady site or leave in the tube positioned horizontally in a shady site with the paper strip kept moist.

Leafhoppers are frequently present in crops but often do not cause enough damage to warrant any action to control them. However, as leafhopper is becoming more serious we would suggest that you take positive action is taken to reduce their numbers such as keeping weeds down both outside and inside the glasshouse.

Lacewings and *Macrolophus* will both feed on leafhopper nymphs, but no biological control is available for the adults.