

Aphids

Aphids are small pear-shaped insects that vary in colour both within and between species. With their alarming rate of reproduction and increasing resistance to pesticides, they are becoming a much more serious threat to greenhouse crops.

All aphids feed by inserting their stylets into the conducting vessels of the plant and feeding on plant sap. There are now effective aphid predators and parasites, and growers have started to rely on these for control. The biological control agent used can depend on several factors including pest levels and aphid species.

Biological Control

APHISURE (c) – *Aphidius colemani* in units of 500

APHISURE (e) – *Aphidius ervi* in units of 250

APHIDOSURE (a) – *Aphidoletes aphidimyza* in units of 1000

APHELSURE (a) – *Aphelinus abdominalis* in units of 100

CHRYSOSURE (c) – *Chrysoperla carnea* in units of 500



Spider mite

Glasshouse spider mite or two spotted mite (*Tetranychus urticae*) is one of the most damaging pests which attack horticultural crops. A wide range of crops are affected, both protected and field grown. Spider mites have a rapid reproduction and development which make resistance to chemicals more likely.

The mites feed by sucking sap from under the surface of the leaf. This produces groups of small white speckles which are clearly seen from the upper surface of the leaf. When mite numbers become high, these spots coalesce, giving a bleached appearance to the affected tissue. This can affect both plant appearance and reduce photosynthesis which may in turn result in plant death. Spider mite also produce webs and some strains have toxic saliva which can cause serious damage when only few mites are present (toxicity is most common on tomato plants).



Biological Control

PHYTOSURE (p) – *Phytoseiulus persimilis* in units of 2000

PHYTOSURE (pt) – Tomato *Phytoseiulus persimilis* in units of 2000

FELSURE (a) – *Feltiella acarisuga* in units of 250

Thrips

There are many species of thrips found in Britain, several of which may occasionally attack crops. The most common species found on protected crops are *Thrips tabaci* (onion thrips) and more recently *Frankliniella occidentalis* (western flower thrips or W.F.T.).

Thrips feed on many types of crops causing damage to leaves and scarring to both flowers and fruit. Damage to leaves can be recognised by the appearance of white flecks with black spots (droppings) in them. If the damage is severe, leaves become totally "silvered" and many young and adult thrips can be seen underneath the leaf and in the flowers. Thrips can also transmit viruses such as tomato spotted wilt virus, which is damaging to a range of crops.



Biological Control

AMBSURE (abs) – *Amblyseius cucumeris* in units of 50 or 250 sachets

AMBSURE (c) – *Amblyseius cucumeris* in units of 50,000 (sprinkler pack)

AMBSURE (cv) – *Amblyseius cucumeris* in units of 25,000 (vermiculite sprinkler pack)

ORISURE (l) – *Orius laevigatus* in units of 500

HYPOSURE (m) – *Hypoaspis miles* in units of 25,000 (and 50,000 for cucumbers)

NEMASYS^a – *Steine rnema feltiae* in units of 50 million, 250 million and 1.25 billion.

Vine weevil

The Black Vine Weevil (*Otiorhynchus sulcatus*) is a pest of many crops, and is a major pest where polythene or containers are used. Adults feed at night, and are therefore rarely seen, they leave rounded notches at the edges of leaves and flowers. It is the damage done to the plant roots by larval feeding which causes crop losses. Attacked plants often show few symptoms above ground until they are severely weakened and dying.

Biological Control

NEMASYS[®] L – *Steinernema kraussei* in units of 50 and 250 million

NEMASYS[®] H – *Heterorhabditis megidis* in units of 50 and 250 million.



Whitefly

The glasshouse whitefly (*Trialeurodes vaporariorum*) is a familiar pest, attacking a wide range of greenhouse crops. It feeds on the plant sap, reducing plant vigour and can multiply rapidly. It can also transmit viruses and the honeydew produced can encourage the growth of "sooty moulds", which reduce the plants photosynthetic ability and may affect the quality of fruit and flowers.

Increasing resistance of whitefly to chemical pesticides is making the use of biological control more important in the management of this pest.

Biological Control

ENCARSIA (fc) – Encarsia formosa in units of 1000 on card

ENCARSIA (f) para-shooter system – Encarsia formosa in units of 1000 or 5000 loose pupae



Recommendations for BEESURE Bees (glasshouse and poly tunnels only)

SOFT FRUIT

There is a range of bumblebee hives available to suit different tunnel / glasshouse sizes and flowering periods.

Product	No. of workers	Activity	Area pollinated
Beesure 1	50 - 60 + queen	6-8 weeks	1000 - 1500m ²
Beesure 2**	60 - 80 + queen	5 - 6 weeks	1000 - 1500m ²
Beesure 3***	50	3 - 4 weeks	Up to 500m ²
Beesure 4	180 - 240 + 3 queens	5 - 6 weeks	4500m ²

** BEESURE 2 hives are used for strawberries. For crops with over 100,000 plants per hectare use 1 hive per 1000 m².

*** BEESURE 3 (Mini Hives) are ideal for introduction into smaller areas such as French tunnels.



TOP FRUIT (For all outdoor crops only use native BEESURE AUDAX *Bombus terrestris audax*)

Bumblebees can be used effectively outside to supplement natural pollinators in orchards.

Introduce 3 to 5 BEESURE AUDAX hives or 1 to 2 BEESURE AUDAX treble hives per hectare. These should be positioned in the middle of the orchard to avoid the bees pollinating neighbouring crops. Also ensure adequate protection is given to the hives against rain and direct sun.