

Guidance note

Controlling whitefly in polytunnels and shade houses

What is the whitefly?

Whitefly is a tiny white fly related to aphids which lives on the underside of plants such as aubergine, beans, cucumbers, pumpkin, squash and tomatoes, and others. Adults fly up in a cloud when you brush the leaves.

You can see adults under leaves near the top of the plant and their pale green grubs under leaves nearer the bottom of the plant. They breed very well in protected environments, especially in the warmer months.



Adult whitefly

What sprays can I use?

Whitefly is very difficult to control with sprays. It is resistant to Ripcord so it is a waste of time and money to use it. There are 2 sprays which work: Mulan will knock down adults and Oberon will control eggs and young, while reducing adult females' ability to lay eggs.



Healthy whitefly grubs

Biocontrol for whitefly

There is a tiny wasp called *Encarsia* which targets the whitefly grub so it perfectly complements the sprays. It eats small ones and lays its eggs in larger ones – they can live up to 30 days and lay up to 300 eggs. Grubs which have been stung turn black and are easy to spot on the leaves.

Encarsia is everywhere on the island but doesn't breed as fast as whitefly. To overcome this you can mass-release *Encarsia* into the polytunnel or shade house to give them a head-start. There are 2 ways of collecting *Encarsia*:

- Collect younger leaves with the black grubs of stung whitefly and place them right side up around the polytunnel and shade house: assume about half the black dots are unhatched and contain wasps;



Whitefly grubs stung by *Encarsia*

- Collect adult *Encarsia* using an aspirator, either directly or emerged from infested leaves: this way you can get an exact count

Recommended release rates are:

Whitefly level	Encarsia per m2 area per week
Nil	1 (preventative)
Low	2
Medium	5
High	10 – 20 or more

For a polytunnel 60'x26' with 400 tomato or cucumber plants, release 100 – 150 *Encarsia* a week. Once you have around 80% of the whitefly grubs stung (black) the whitefly population will be under control. This can take up to 10 weeks.

Check plants at least once a week, looking under leaves lower down on the plant.

Can I use biocontrol and sprays together?

Yes you can, you just need to plan it out.

Low to medium levels of whitefly:

- Spray Oberon to kill eggs and young

High levels of whitefly:

- Spray Mulan to knock down adults
- After 2 days start introducing *Encarsia* at the high rate to kill grubs



If you have to use sprays to control other pests such as mites the sprays will probably kill a lot of adult *Encarsia* but the young wasps in the stung grubs will be protected:

- Leave at least 2 days between spraying and introduction of a new lot of *Encarsia* – so 2 days before or 2 days after. Most *Encarsia* will then survive.
- Spot spraying Malathion to control root mealybug will not affect *Encarsia*

What about open field crops or plants?

It is much harder to control whitefly outside polytunnels and shade houses. Oberon and Mulan can only be used on crops in polytunnels, and Ripcord won't work against whitefly. Using *Encarsia* as outlined above may help but will not be as effective.

For further advice please contact Pest Control at ANRD on 24724.