

WHITEFLY

SOLUTIONS GUIDE

Whiteflies are significant pests of many flower and nursery crops. They are not true flies but belong to the order *Homoptera*, along with aphids and scale pests. Although there are numerous species of whiteflies in the U.S., the two most common that infest greenhouse and outdoor nursery crops are the greenhouse whitefly (*Trialeurodes vaporariorum*) and the silverleaf whitefly (*Bemisia tabaci*).

The silverleaf whitefly has multiple biotypes, or genetic variants of the same species. The most common are biotypes B and Q, which look identical and cannot be visually differentiated. Knowing which biotype is present through biotyping, will determine the proper insecticide treatments to select. In general, newer insecticides are more effective against biotype Q.

Whiteflies are highly prone to developing insecticide resistance so rotating modes of action is crucial.



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SUSCEPTIBLE CROPS

Whiteflies have a very wide host range. Some of the most frequently attacked plants are:

- Allamanda
- Chrysanthemum
- Gardenia
- Gerbera
- Hibiscus
- Lantana
- Mandevilla
- Poinsettia
- Salvia
- Verbena
- Viburnum

LIFECYCLE

Understanding the whitefly lifecycle can help you better prevent them.

- Female whiteflies lay their eggs, partially inserted, on the underside of leaves.
- Newly hatched nymphs crawl around the leaf surface before attaching themselves to the leaf for completion of their lifecycle.
- Time from eggs to adult can occur in as little as 21 days so populations can build quickly.

Whiteflies do not have a dormant stage so in climates where there are winter freezes, they can be year-round pests in greenhouses.

DAMAGE

Both the adults and immature stages of whitefly have piercing-sucking mouthparts, which are inserted in the phloem and extract plant sap; affecting the overall vigor of plants. Nymphs cause the majority of damage, which can include:

- Reduced leaf expansion
- Chlorotic spots on top sides of leaves
- Leaf discoloration or silvering
- Leaf loss
- Presence of honeydew secretions on leaves that may result in black sooty mold on leaf surfaces

Low levels of whitefly populations are not usually damaging; however some adult whitefly species, including *B. tabaci*, can transmit plant viruses.

CULTURAL PRACTICES

To help prevent the development and spread of whitefly infestations, it is important to implement proper cultural practices.

- Maintain weed-free production areas. Whiteflies feed on numerous hosts, so eliminate potential sites of contamination.
- Inspect new shipments of plants. If possible, isolate new stock for 1-2 weeks allowing time for any existing nymphs to develop so that they are more easily seen.
- Adults are mobile, so use screens in greenhouses to help exclude populations.
- Scout regularly. Monitor egg and nymph populations by checking the underside of leaves with a hand lens. Monitor for adults with yellow sticky cards.
- If using biologicals such as *Encarsia formosa*, *Eretmocerus spp.* and *Amblyseius swirskii*, begin releases early in production before whitefly populations begin to increase.
- Ensure good coverage on both the top and undersides of the leaves when applying spray treatments.

RESISTANCE MANAGEMENT

Rotating insecticides with different modes of action is necessary to control whiteflies and manage resistance.

- Select **3 products with different mode of action classifications** that have proven activity on the pest.
- Position these products in the rotation program based on their activity and strengths.
- Rotate among these products based on label recommendations.

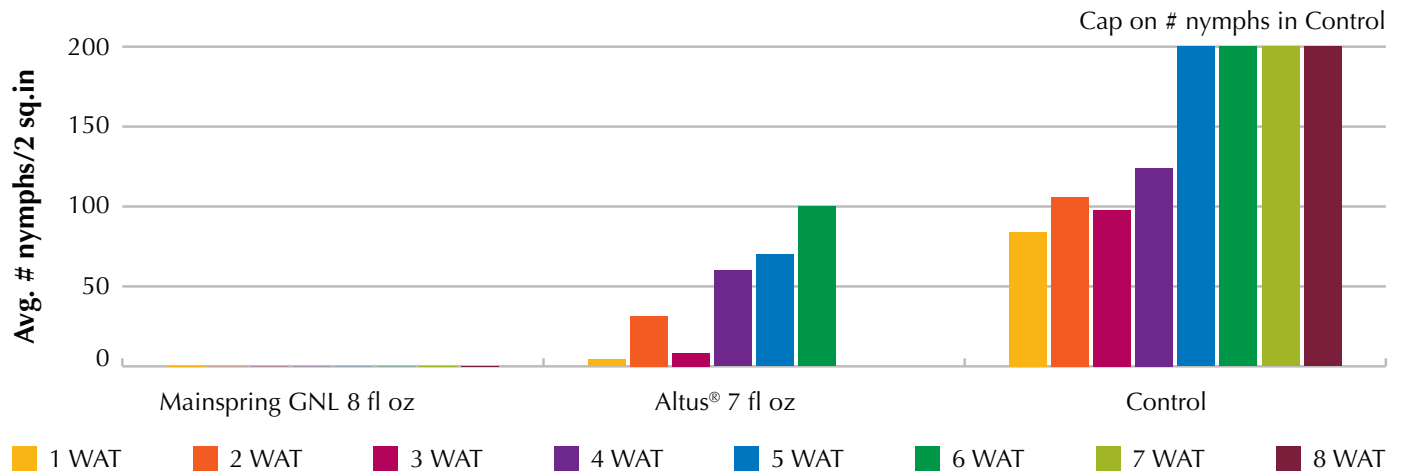
Mainspring® GNL insecticide is a powerful prevention tool for growers. With a unique active ingredient in IRAC Group 28, it is ideal for Integrated Pest Management (IPM) programs. It is not cross-resistant with neonicotinoids because of its novel mode of action and it is compatible with multiple beneficial species.

WHITEFLY CONTROL SOLUTIONS

Although cultural controls and good sanitation practices can mitigate the severity of whitefly problems, usually some chemical controls are required for effective control. These products work well to control this pest while offering different modes of action to minimize the onset of insect resistance. By using a preventive approach to controlling whitefly, you save time and resources over curative treatments.

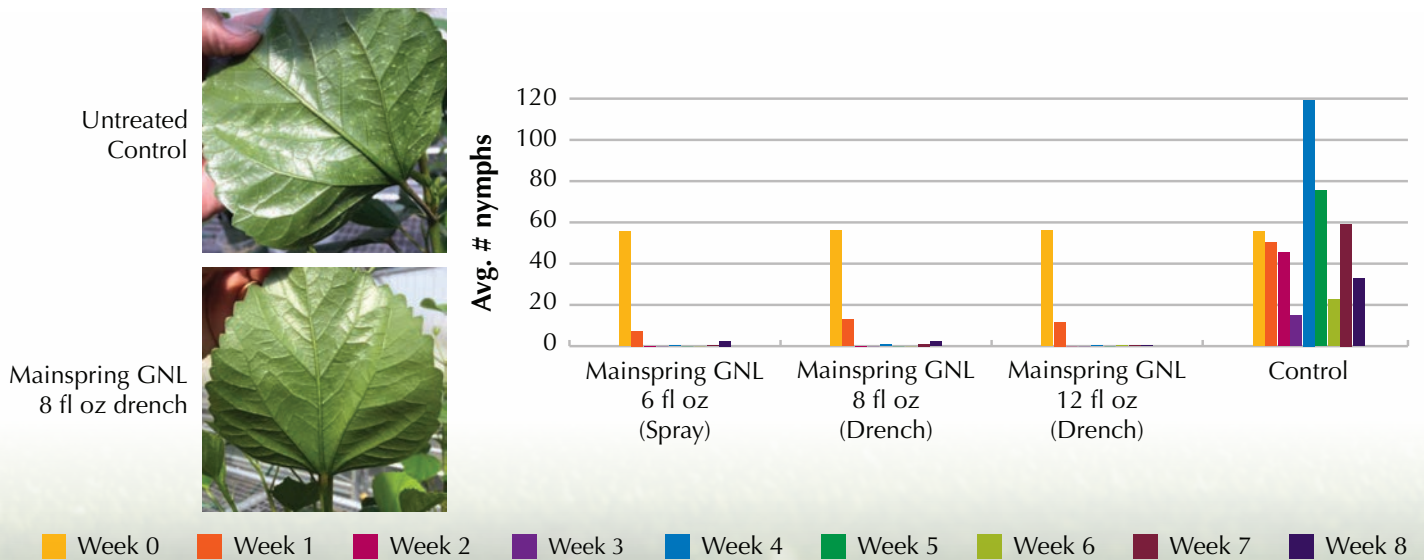
Insecticide	IRAC Group	Rate (per 100 gal)	Activity	Activity on Q Biotype	Notes
Avid® 0.15EC	6	8 fl oz (8-16 fl oz/A) (Spray)	Contact Translaminar	Yes	<ul style="list-style-type: none"> • Use early in production to prevent newly emerged nymphs from developing • Effective on B & Q biotypes
Endeavor®	9B	5 oz (Spray)	Translaminar	Some	<ul style="list-style-type: none"> • Apply on a 14-21 day interval to stop adults and immatures from feeding • Compatible with beneficial insects
Flagship® 25WG	4A	4-8.5 oz (Spray or Drench)	Contact Systemic Translaminar	Yes	<ul style="list-style-type: none"> • Apply sprays on a 14-day interval • Use as a drench for long-term, systemic control • Compatible with predatory mites when applied as a drench • Effective on B & Q biotypes
Mainspring® GNL	28	4-8 fl oz (Spray) 8-12 fl oz (Drench)	Systemic Translaminar	Yes	<ul style="list-style-type: none"> • Apply sprays on a 14-day interval • Use as a drench for long-term, systemic control • Compatible with beneficial insects • Effective on B & Q biotypes
Scimitar® GC	3	3-5 fl oz (Spray)	Contact	Yes	<ul style="list-style-type: none"> • Apply as needed to reduce adult populations • Effective on B & Q biotypes

CONTROL OF WHITEFLY (*BEMISIA TABACI* B BIOTYPE) ON POINSETTIA



2017 – ATOC, Ferguson Transplanted 8/24/17 in 8-inch containers with Pro-Mix® BX; Treatments applied as a 6 fl oz drench; WAT = Weeks After Treatment

CONTROL OF WHITEFLY (*BEMISIA TABACI* Q BIOTYPE) ON HIBISCUS



Hibiscus plants grown in 4-inch containers; Drench volume applied to container: 3 fl oz; Spray treatment: Twice on 14-day interval; Six replicates; Counts made on two leaves per plant

Learn more about the Syngenta portfolio of products for whitefly control at www.GreenCastOnline.com/Ornamentals

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