

# WHITEFLIES

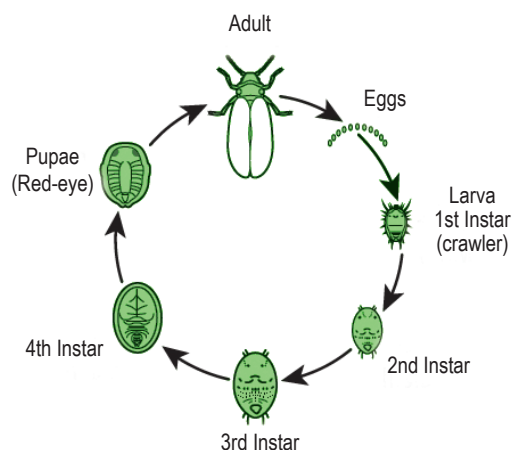
## BASF Insect Management Guide

### Take an Integrated Approach to Whiteflies

Adopt an **I**ntegrated **P**est **M**anagement (IPM) program that includes:

- Scouting: visual inspection + sticky traps
- Positive identification of pests and their signs
- Record keeping
- Decision making based on historical information
- Use of different control practices: chemical, biological, cultural, and mechanical

### Typical Whitefly Life Cycle



### Chemical Control

Option	Rotation 1	Rotation 2	Rotation 3	IRAC Mode of Action Groups
1	<b>Ventigra™ insecticide</b>	<b>Velifer® fungal contact insecticide/miticide</b>	<b>Velifer fungal contact insecticide/miticide</b>	9D, UN
2	<b>Ventigra insecticide</b>	Mainspring® insecticide	<b>Ventigra insecticide</b>	9D, 28
3	Altus® insecticide	<b>Ventigra insecticide</b>	<b>Ventigra insecticide</b>	4D, 9D
4	<b>Ventigra insecticide</b>	Aria® insecticide	Kontos® insecticide/miticide	9D, 29, 23
5	Tristar® insecticide	<b>Ventigra insecticide</b>	<b>Ventigra insecticide</b>	4A, 9D
6	Marathon® insecticide + IGR	<b>Ventigra insecticide</b>	<b>Ventigra insecticide</b>	4A+7, 9D
7	<b>Ventigra insecticide</b>	Azatin® O biological insecticide	<b>Ultra-Pure Oil insecticide/miticide</b>	9D, UN, NC

- Apply Ventigra insecticide at 4.8-7.0 fl oz/100 and Velifer fungal contact insecticide/miticide at 3-13 fl oz/100; apply others at standard local rate (SLR)
- Choose an IGR (Insect Growth Regulator) by use site and rate: Enstar®, Fulcrum®, or Distance® IGR
- Begin applications at the onset of infestation; include adjuvant as needed for best results

- Target insecticide applications to juvenile lifestages: larvae through pupae
- Refer to product labels and recommendations for additional instructions
- For additional MOA groups, include a pyrethroid (Group 3), abamectin (Group 6), or azadirachtin (Group UN)
- Make no more than two (2) sequential applications of any group before rotating to another MOA

## Biological Control

Commonly used biological control agents (BCAs) for Whiteflies

Consult with your BCA supplier for availability, rates, timing, and compatibility

### Natural Enemy

*Encarsia formosa* – parasitoid

*Eretmocerus eremicus* – parasitoid

*Chrysoperla* spp. – predator

*Delphastus* spp. – predator

*Hippodamia convergens* – predator

*Amblyseius swirskii* – predator

*Beauveria bassiana* – beneficial fungus



- Check the compatibility of BCAs with your chemical applications prior to releases
- There are a number of naturally occurring beneficial organisms that may predate or parasitize whiteflies. When possible, avoid using broad spectrum insecticides to preserve these natural enemies.

Consult with your BASF representative for more specific recommendations.

Visit [betterplants.basf.us](https://betterplants.basf.us) for more information about BASF products and innovations.

### Always read and follow label directions.

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## Cultural Control

- Maintain good sanitation practices with special focus on host crop or host plant areas
- Whiteflies may be repelled by reflective mulches and other materials (UCCE IPM)
- Use yellow sticky cards or ribbon/tape in greenhouses and other production areas; check, count and replace them regularly
- Avoid overfertilizing, particularly with nitrogen which increases the rate of whitefly reproduction
- Manage weeds in landscapes, nurseries and production area – they may harbor whiteflies
- Scout the landscape plantings around the nursery for potential reservoirs of whiteflies

## Mechanical Control

- Include mechanical insecticides in your program, like oils (see rotations for recommendation)
- Screening enclosures such as hoop houses, high tunnels and Cravo houses can help exclude whiteflies from entering production areas
- During whitefly season, closing houses during windy periods can reduce immigration

## Best Management Practices for Whiteflies

- **Scout** known host plants in spring
- In addition to monitoring whitefly populations, **watch** for the presence of wax, webbing and honeydew
- Honeydew may require **fungicide** applications for sooty mold
- **Treat** affected plants at the onset of infestation
- Always **read** and follow label instructions
- Use all four approaches for an **integrated** program: chemical, biological, cultural and mechanical

