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MEALYBUGS

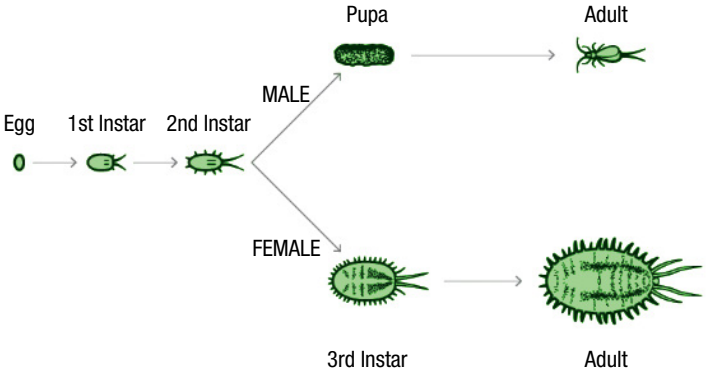
BASF Insect Management Guide

Take an Integrated Approach to Mealybugs

Adopt an Integrated Pest Management (IPM) program that includes:

- Scouting: visual inspection
- 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 Mealybug Life Cycle



Chemical Control

Option	Rotation 1	Rotation 2	Rotation 3	**IRAC** Mode of Action Groups
1	**Ventigra®** insecticide	**Velifer®** bioinsecticide/ miticide	**Velifer** bioinsecticide/ miticide	9D, UN
2	**Ventigra** insecticide	Mainspring® GNL insecticide	**Ventigra** insecticide	9D, 28
3	Altus® insecticide	**Ventigra** insecticide	**Ventigra** insecticide	4D, 9D
4	**Ventigra** insecticide	Aria® insecticide	Kontos® insecticide/ miticide	9D, 29, 23
5	TriStar® 8.5 SL insecticide	**Ventigra** insecticide	**Ventigra** insecticide	4A, 9D
6	Marathon® insecticide + IGR	**Ventigra** insecticide	**Ventigra** insecticide	4A+7, 9D
7	**Ventigra** insecticide	**Ventigra** insecticide	**Ultra-Pure® Oil** horticultural fungicide, insecticide and miticide	9D, NC

- Apply Ventigra insecticide at 4.8-7.0 fl oz/100 gallons; apply all others at standard local rate (SLR)
- Choose an IGR (Insect Growth Regulator) by use site and rate: Enstar® AQ insect growth regulator, Fulcrum® insect growth regulator, or Distance® insect growth regulator
- Begin applications at the onset of infestation; include adjuvant in applications 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) 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 Mealybugs

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

Natural Enemy
Anagyrus pseudococci – parasitoid
Chrysoperla spp. – predator
Cryptolaemus montrouzieri – predator
Hippodamia convergens – predator
Leptomastidea abnormis – parasitoid
Leptomastix dactylopii – parasitoid
Beauveria bassiana – beneficial fungus

- Check the compatibility of BCAs with your chemical applications prior to releases
- Control ants as they work against BCAs by protecting mealybugs from natural enemies
- There are a number of naturally occurring beneficial organisms that may predate or parasitize mealybugs. When possible, avoid using broad spectrum insecticides to preserve these natural enemies.

Cultural Control

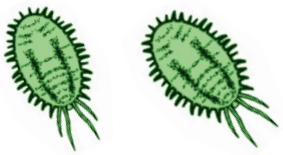
- Maintain good sanitation practices with special focus on host crop and host plant areas
- Scout the landscape plantings around the nursery for potential reservoirs of mealybugs
- Pay careful attention to perennial stock or “mother” plants that may harbor pest populations
- Thoroughly inspect new plant material for eggs and juveniles
- Avoid overfertilizing, particularly with nitrogen, which can increase mealybug populations
- High pressure washing of pads, benches and non-porous surfaces can reduce pest populations

Mechanical Control

- Oils and insecticidal soaps are key for controlling scale insects
- After control is established, plants may need to be cleaned to remove pests and residues – oils, insecticidal soaps, or plant-safe adjuvants can be helpful
- Trap boards and sticky cards are useful for intercepting adults and motile juveniles as an early scouting technique, but will not provide suppression or control

Best Management Practices for Mealybugs

- **Scout** known host plants in spring
- Be able to **identify** the common male and female adult mealybugs for your area and crop
- **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



Always read and follow label directions.

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