

SCALE INSECTS

BASF Insect Management Guide

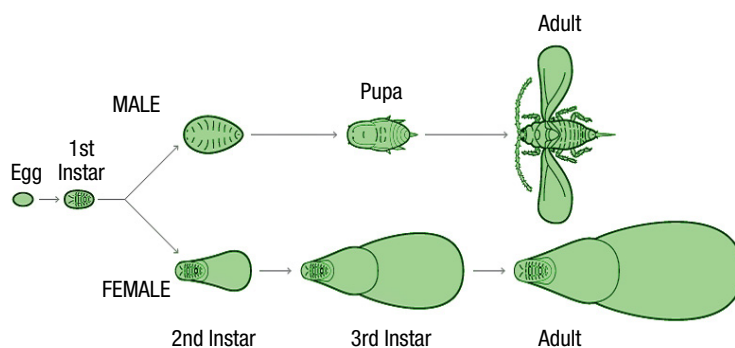
Take an Integrated Approach to Scale Insects

Adopt an **I**ntegrated **P**est **M**anagement (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

Chemical Control

Typical Scale Insect Life Cycle



Option	Rotation 1	Rotation 2	Rotation 3	IRAC Mode of Action Groups
1	Ventigra ® insecticide	Mainspring® GNL insecticide	Ventigra insecticide	9D, 28
2	Altus® insecticide	Ventigra insecticide	Ventigra insecticide	4D, 9D
3	Ventigra insecticide	Aria® insecticide	Kontos® insecticide/miticide	9D, 29, 23
4	TriStar® 8.5 SL insecticide	Ventigra insecticide	Ventigra insecticide	4A, 9D
5	Marathon® insecticide + IGR	Ventigra insecticide	Ventigra insecticide	4A+7, 9D
6	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 early; 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 scale insects

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

Natural Enemy

Aphytis spp. – parasitoid

Cryptolaemus montrouzieri – predator

Encarsia spp. – parasitoid

Various lady beetles

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 scales from natural enemies
- There are a number of naturally occurring beneficial organisms that may predate or parasitize scales. When possible, avoid using broad spectrum insecticides to preserve these natural enemies.

Always read and follow label directions.

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Cultural Control

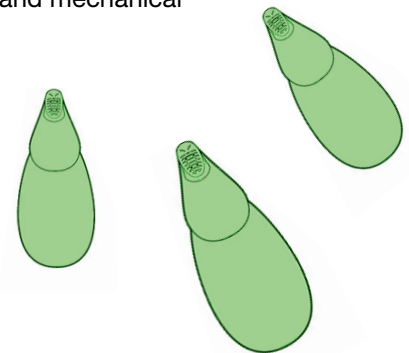
- Maintain good sanitation practices with special focus on host crop and host plant areas
- Scout the landscape plantings around the nursery for potential reservoirs of scale insects
- Pay careful attention to perennial stock or “mother” plants that may harbor pest populations
- Thoroughly inspect new plant material for eggs and juveniles

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 Scale Insects

- **Scout** known host plants in spring and all new plant material
- Be able to **identify** the common scale species to your area and crops
- **Treat** affected plants at the onset of infestation; treat known hosts preventatively
- Always **read** and follow label instructions
- Use all four approaches for an **integrated** program: chemical, biological, cultural and mechanical



 **BASF**

We create chemistry