GROWERTALKS

Pest Management

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Plant Protection of Foliage Plants & Houseplants

Dr. Raymond A. Cloyd



Foliage plants and houseplants grown in enclosed or outdoor production systems are susceptible to a variety of insect and mite pests, such as aphids, broad mite, mealybugs, scales, spider mites, thrips and whiteflies. There are challenges associated with managing insect and mite pests because the growing conditions for foliage plants and houseplants are favorable for insect and mite pest development, growth and reproduction. When temperatures are above 75F (23C), the life cycle (egg to adult) of most insect and mite pests can be completed in less than two weeks. Consequently, it's important to implement plant protection strategies that will maintain insect and mite pest populations below plant damaging levels.

Figure 1. Shake leaves over a white sheet of paper attached to a clipboard to detect the presence of insect and mite pests.
Figure 2. Check foliage plants and houseplants received from a supplier for the presence of insect and mite pests.
Figure 3. Weeds underneath bench in production area.

Scouting

Scouting is a procedure designed to: 1) Determine trends associated with insect and mite pest populations throughout the growing season; and 2) detect insect and mite pest presence early in the production cycle so that appropriate plant protection strategies can be applied in a timely manner. It's important to know when insect and mite pests are active during the growing season or determine the seasonality of pest problems, which will enhance the effectiveness of plant protection strategies in maintaining insect and mite pest populations below plant damaging levels.

Scouting involves thoroughly inspecting foliage plants and houseplants—especially leaf undersides—for the presence of eggs, larvae, nymphs, pupae and adults of insect or mite pests, including aphids, mealybugs, scales, spider mites, thrips and whiteflies. Foliage plant and houseplant leaves or branches can be shaken over a white sheet of paper attached to a clipboard (Figure 1) to determine the presence of insect and/or mite pests, such as

mealybugs, spider mites and thrips. Scout foliage plants and houseplants weekly and space plants accordingly to enhance the efficiency of scouting efforts.

Yellow sticky cards can be used to capture the adult stages of thrips and whiteflies. One yellow sticky card should be placed in every 500 sq. ft. of production area and be equally distributed throughout the production area. Yellow sticky cards should be positioned 1 in. above the plant canopy or level with the plant canopy. Check yellow sticky cards weekly and count the number of captured insect pests. Be sure to keep records on the number or presence of insect and mite pests for each scouting event during the growing season.

Quarantine

If possible, isolate foliage plants and houseplants received from a supplier and inspect (Figure 2) at least every three days for one week to determine if they're infested with insect or mite pests before introducing into the main production area. Check for the presence of insect and mite pests, including eggs, nymphs, larvae, pupae and adults. Once foliage plants and houseplants have been found to not be infested with insect or mite pests, they can then be moved into the main production area.

Sanitation

Sanitation entails keeping production areas clean by removing weeds and disposing of plant and growing medium debris. Remove weeds from the production area (Figure 3) and around the perimeter of the production area because weeds—such as dandelion, nightshade, oxalis, pigweed, purslane and/or sowthistle—may harbor aphids, mealybugs, thrips and/or whiteflies. Furthermore, weeds may provide overwintering sites for insect and/or mite pests. Plant debris, such as old leaves, that are harboring insect pests should be removed from the production area to prevent insect pests from infesting foliage plants and houseplants.



Figure 4. Plant and growing medium debris should be placed into refuse containers with tight sealing lids.

Plant and growing medium debris should be placed into refuse containers with tight sealing lids (Figure 4) or immediately removed from the production area. Plant debris can harbor insect pests, including thrips and whiteflies, so placing plant debris into sealed refuse containers will prevent adults from moving out of the containers and onto foliage plants and houseplants.

High pressure water sprays

Apply high pressure water sprays once per week to quickly dislodge the eggs, larvae, nymphs, pupae and adults of insect and mite pests. High pressure water sprays should thoroughly cover all plant parts, especially leaf undersides (Figure 5). Target plants that are infested with insect or mite pests. Insect and mite pests, in general, won't re-infest plants once they've been dislodged.

One benefit of applying high pressure water sprays is there's no restricted entry interval and no personal protective equipment is required. In addition, when foliage plants or houseplants are heavily infested with insect or mite pest populations, high pressure water sprays may be a more practical and effective strategy than applying insecticides or miticides.



Insecticides & miticides

When applying insecticides and miticides to maintain insect and mite pests below plant-damaging levels, be sure to: 1) Thoroughly cover all plant parts with spray solutions, especially leaf undersides; 2) apply at intervals based on label directions; and 3) rotate modes of action to avoid the development of resistance developing in insect and/or mite pest populations.

Figure 5. Apply a high pressure water spray to leaf undersides to dislodge insect and mite pests.

Use one mode of action within a generation (one to two weeks) before switching to a different mode of action in the next generation. It's important to initiate rotation programs early in the production cycle because from spring through fall multiple generations may be present simultaneously, which can complicate rotation programs.

For more information on resistance management and insecticide/miticide rotation programs, refer to the following extension publication: Cloyd, R. A. 2021. Resistance management of arthropod pests in greenhouse production systems. Kansas State University Agricultural Experiment Station and Cooperative Extension Service. Kansas State University; Manhattan, KS. MF3564. **GT**

Dr. Raymond A. Cloyd is a Professor and Extension Specialist in Horticultural Entomology and Plant Protection at Kansas State University. He can be reached at (785) 532-4750 and rcloyd@ksu.edu.