

Managing Two-Spotted Mites in the Greenhouse

The two-spotted mite (TSSM), *Tetranychus urticae*, is the predominant mite species in greenhouses, feeding on many different herbs, herbaceous perennials, spring annual bedding plants, and greenhouse vegetables. This mite is difficult to control because of its short generation time, potential for rapid increase and development of resistance to many commonly used miticides. Growers often overlook spider mites, due to their small size and tendency to feed on the underside of leaves, until outbreaks occur.

Identification

Spider mites are more closely related to spiders and ticks than insects. They have eight legs rather than six legs and only two body regions (the head and thorax are fused together). Adult females are small, (less than 1/50 of an inch long), soft-bodied and oval in shape. Color varies from greenish or yellowish to orange with two dark spots on either side of their body. Bright orange forms occur when adult females are overwintering. Spider mites have a pair of silk glands near their mouthparts enabling them to spin webbing or silk threads.

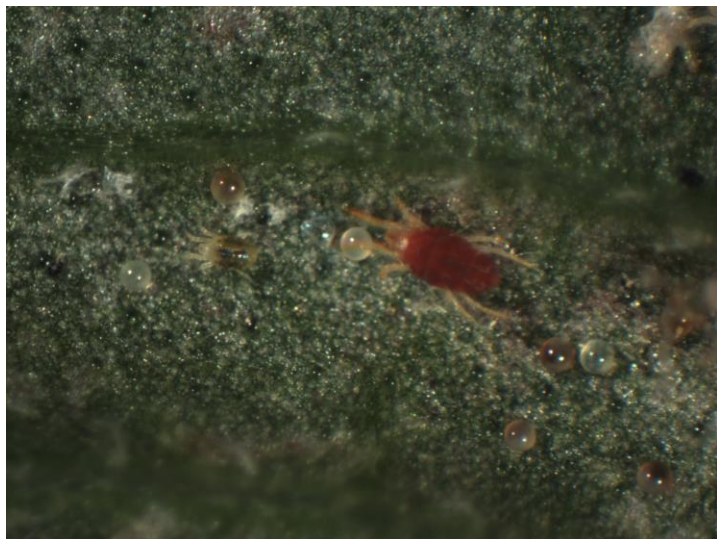


Figure 1: Bright orange diapausing adult female mite on right. Photo by L. Pundt

Feeding Damage As spider mites insert their stylet-like mouthparts into plant tissue, they suck out plant juices reducing chlorophyll and moisture content with the leaf cells. At first, you will see a slight flecking or stippling (chlorotic spot) on the leaves. As mite feeding continues, leaves can turn yellow, bronzed, and drop from the plant.



Figure 2: Flecking or stippling as signs of spider mite feeding and yellowing leaves, resembling a nutrient disorder (far right). Photos by L. Pundt

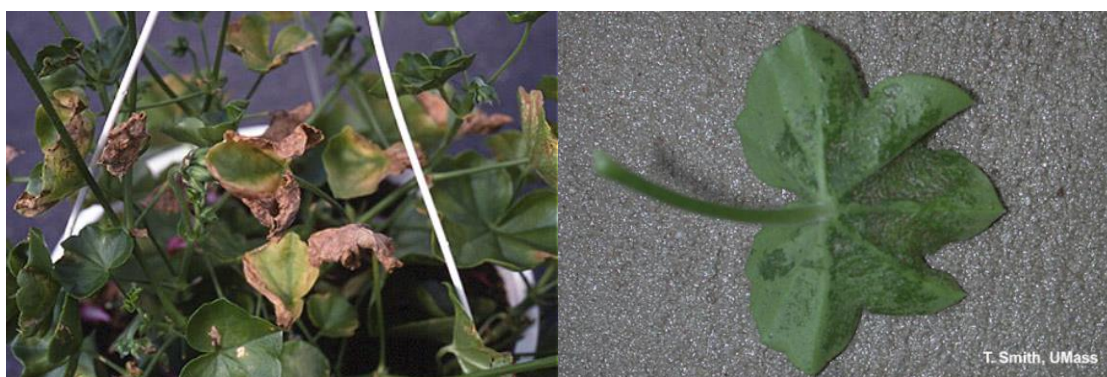


Figure 3. Stippling from spider mite feeding does not occur on ivy geraniums. Mite injury on ivy geraniums resembles edema (oedema), with the damage spreading to the youngest leaves, which would not occur with edema, which primarily occurs on the lowest leaves. Photo by L. Pundt (on left) and T. Smith (on right)

Two-spotted spider mites can feed on over 300 different species of plants. Many greenhouse ornamentals are favored hosts including dracaena spikes, ivy geraniums, New Guinea impatiens, garden impatiens, hydrangea, *Ipomoea*, marigolds, vinca vine, verbena, and viola. Many herbaceous perennials including beebalm, hollyhock, columbine, daylily, butterfly bush, primula, scabiosa, verbena, and salvia are also prone to mites. Herbs such as lemon balm, lemon verbena, lemon grass, oregano and mints can also be favored hosts. Weeds such as chickweed, oxalis, pigweed, and henbit found in and around greenhouses can be sources of continuing infestations. When high populations develop, fine webbing is extensive. Spider mites migrate to the young, new growth where they can become easily airborne and blown to new hosts.

Scouting

Inspect plants weekly for signs of spider mite feeding. In the greenhouse, focus on scouting hot and dry locations such as near furnaces and hanging baskets. Check near the doorways and vents, where mites may be blown in from weedy areas outside. Tag pest infested plants as indicator plants to determine the effectiveness of control measures.

Plant inspection is needed to detect all stages of mites. First, look for slight discoloration or flecking. Then, turn over leaves, especially the older, more mature leaves and look for the spider mites that tend to be found along the leaf vein. Use a 10-20x hand lens to detect the eggs and all stages of mites. Look on the underside of the leaves for cast skins and empty eggshells, too. Because mites are easily carried on workers or their clothing, do routine greenhouse tasks and scout in mite-infested areas at the end of the day.



Figure 2: Empty eggshells and cast skins of spider mites on left and all stages of spider mites along the leaf vein on right. Photos by L. Pundt

Biological Control

Several different predatory mites are commercially available. See *Biological Control of Two-Spotted Spider Mites* factsheet on the UConn Greenhouse IPM webpage under publications and then biological controls for more information.

Chemical Control

Contact or translaminar miticides may be used. When treating with contact materials, thorough coverage is needed to the underside of the leaves where the spider mites are feeding. Resting stages and eggs can be more tolerant to many miticides so repeated applications are often needed.

Spider mites develop resistance to miticides very rapidly. The miticides used in a rotation schedule should have different modes of actions (i.e. come from different pesticide classes and work differently). Follow long-term rotations and all label restrictions in terms of amount and frequency of use. Many of the newer miticides are more selective toward a specific life stage or are more effective when populations are low. Regular monitoring, careful timing and application are needed to get the desired results with more selective miticides.

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References

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