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Broad Mite

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Introduction

Broad mite (*Polyphagotarsonemus latus*) is a nearly microscopic arthropod pest of many ornamental, floriculture, and crop plants, particularly plants started in greenhouses. Broad mites are an emerging pest that are difficult to diagnose due to their small size, their tendency to feed in protected sites, and their habit of leaving infested host plants before feeding damage is fully evident.

Description

An adult broad mite resembles an inflated oval with two pairs of legs close to the head and two pairs of legs located towards the rear (Fig. 1). Broad mites are pale and somewhat translucent. Females have a white mark on their back (Fig. 1). Broad mites are much smaller than a typical spider mite. Female broad mites measure about 0.2 mm in length and males are smaller.

Figure 1. Adult broad mites (T. Dellinger, Virginia Tech).

Broad mite eggs are very distinctive, resembling a clear elliptical dome with many small opaque dots scattered across the surface (Fig. 2). The eggs are remarkably large, nearly half the size of an adult female.

Life History

The life cycle of the broad mite includes egg, larval, nymphal, and adult stages. Broad mites have short life spans of 1-2 weeks, depending on temperature. There are numerous generations in a season. This short developmental time allows them to build populations quickly before their feeding damage becomes noticeable. Broad mites overwinter on infested plants indoors or in greenhouses, or they can arrive on infested plants purchased in the spring.

Fig. 2. Broad mite eggs (T. Dellinger, Virginia Tech).

Damage

Broad mites have toxic saliva that produces stunted, puckered, or otherwise distorted plant growth. Typical symptoms include abnormally curled or strap-like leaves, especially on new tips (Fig. 3). Distorted growth may appear darker than normal. Plants may develop patches of russeting or scabby, corky tissue (Fig. 4). Flower buds may be reduced and deformed. Broad mite damage can be easily mistaken for growth regulator herbicide injury, nutrient deficiencies, or abiotic issues.

Broad mites prefer feeding on young plant tissue. They hide in compressed leaf axils, unfurled leaf and flower buds, and in other hidden, protected areas on plants. They can feed for some time before the resulting damage is seen on expanding plant growth. Broad mites may not be found on visibly affected

plants as they often leave badly damaged plants for fresh, new hosts nearby.

Figure 3. Broad mite damage to tomato shoot (Gerald Holmes, Strawberry Center, Cal Poly San Luis Obispo, Bugwood.org).

Figure 4. Broad mite damage to developing pepper fruits (David Riley, University of Georgia, Bugwood.org).

Hosts

Broad mites feed on many ornamental flowers such as bedding plants or tropical plants grown in green houses. Common flower hosts include marigolds, begonias, impatiens, snapdragons, and chrysanthemums. Susceptible crop plant hosts include tree fruits; beans; tomatoes, potatoes, and peppers; and pumpkins, cucumber, and melons.

Control

Always purchase clean plants without damage symptoms. Practice good greenhouse sanitation or cultural controls in the garden. Consider disposing of badly infested plants when found. Feeding damage by broad mites will persist even after the mites are gone. Infested plants should not be left to overwinter untreated in the greenhouse.

Scout for broad mites and their damage often so treatments can be applied before populations build. Use a very strong hand lens (20x) or a microscope to examine the underside of new foliage, expanding shoots, and buds where broad mites feed. Since broad mites tend to leave plants with older damage, scout for mite populations on plants beside those with the worst damage.

Not all miticides labeled for two-spotted or other species of spider mites may be effective for broad mites. Materials labeled for cyclamen mite may include broad mites on the label. In commercial operations, see the current edition of the VCE Pest Management Guide for Horticulture and Forest Crops for control recommendations for broad mites (https://www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/456/456-017/ENTO-524.pdf). In home gardens or greenhouses, use conventional permethrin sprays. Organic options for broad mites in the home garden include pyrethrin, horticultural oil, insecticidal soap, and neem oil.

Spray plants thoroughly, targeting the underside of the foliage and places where broad mites hide. Repeat applications may be necessary. Follow all label directions carefully, especially regarding the use of materials on edible plants.

Predatory mites effective against broad mites are commercially available, but they work best in a greenhouse and not in landscape or garden plantings. Avoid releasing predatory mites on plants treated with miticides with residual toxicity.

For a nonchemical treatment option, immerse potted plants in water carefully maintained at 115° F for 15 minutes to kill broad mites. The entire plant, including all the foliage, should be immersed. Not all plants may tolerate this heat exposure.

Notes

Broad mites and cyclamen mites (*Phytonemus pallidus*) closely resemble each other, but cyclamen mite eggs are smooth and lack the raised bumps seen on broad mite eggs. Russet mites (*Aculops* spp.) are also very small, but they have conical bodies.

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