



Broad Mites and Cyclamen Mites on Greenhouse Crops

Tarsononemid mites including the broad mite (*Polyphagotarsonemus latus*) and the cyclamen mite (*Phytonemus pallidus*) can cause serious damage to a variety of greenhouse crops. These mites are extremely small which makes it difficult to detect the mites before severe feeding damage is evident. Broad mites are an increasing problem especially when they are introduced on vegetatively propagated material.

Description

Cyclamen mites are very small, less than 1/100 of an inch long, so you cannot see them without the aid of a microscope. They tend to hide in dark, moist areas within tender buds or deep within the flower further hindering detection. Cyclamen mites are shiny and elliptical in shape with four pair of legs. Females are translucent, yellow-to-orange, whereas males are light brown with a claw on each back leg. One way to distinguish cyclamen mites from broad mites is by their egg stage. Cyclamen mite eggs tend to be laid in dark, moist areas. Eggs are smooth, elliptical and about 1/2 the size of the adult female.

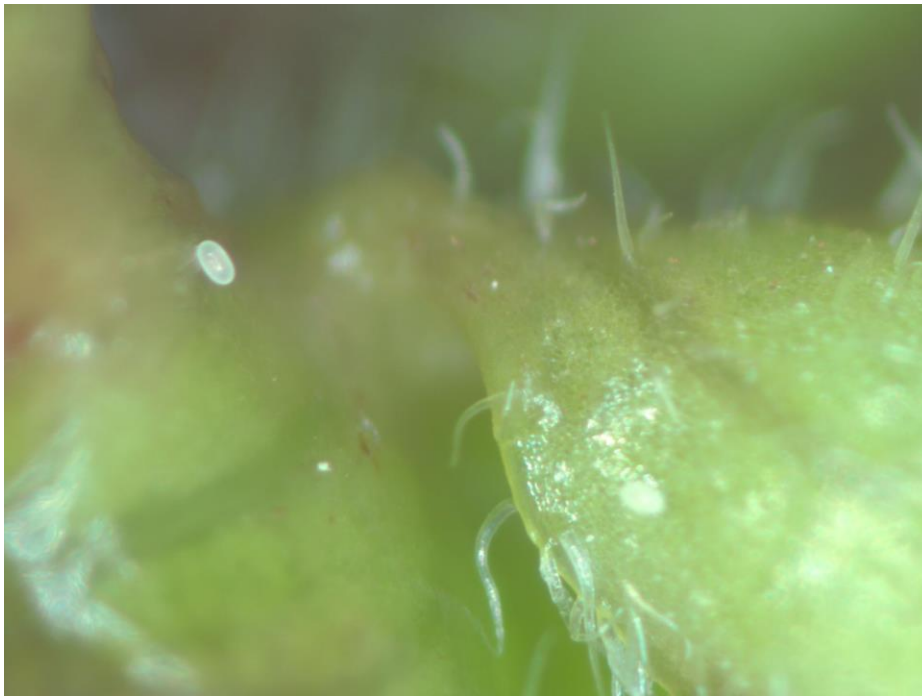


Figure 1: Smooth cyclamen mite egg. Photo by J. Allen

Broad mites are slightly smaller than cyclamen mites and are colorless-to-pale brown with a white stripe down the center of their backs. Broad mite eggs are elliptical but are covered by small whitish bumps that look like rows of

diamonds. Broad mite eggs are more exposed on the underside of the leaf or stem surface than cyclamen mite eggs. Because of this, it is possible to detect the eggs with a 20x hand lens (with practice).

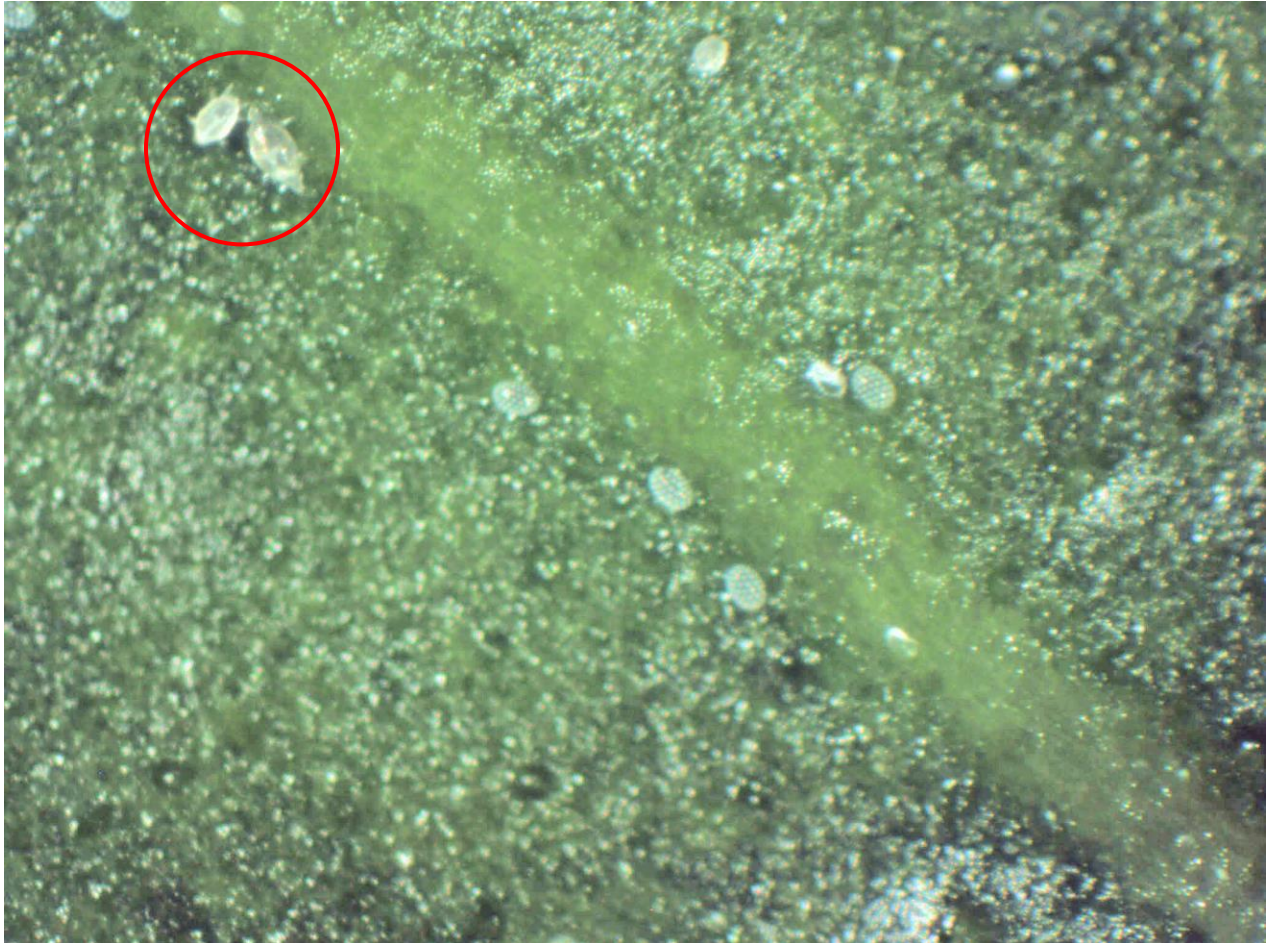


Figure 2: The elliptical, translucent, colorless broad mite eggs are covered with whitish bumps. Broad mite adults are within the circle. Photo by L. Pundt

Feeding Damage

Cyclamen mites prefer to feed in buds and young leaves. Leaves curl inward and develop a puckered appearance. Pit-like depressions may develop. Leaves may become brittle or appear streaked. Flowers become shriveled and discolored and sometimes, they may not open at all.

Cyclamen mites have a broad host range and can feed on African violets, cyclamen, dahlia, gloxinia, ivy, snapdragon, chrysanthemum, geranium, fuchsia, begonia, and petunia. Outdoors, the cyclamen mite can attack delphinium, chrysanthemum, verbena, strawberry, and viola. Damage to delphinium is particularly severe, as flower stalks become twisted and buds turn black and do not open.



Figure 3: Cyclamen Mite Damage to *Delphinium* (Larkspur) with distorted new growth. Photo by J. Allen



Figure 4: Cyclamen mite injury on *Aconitum* (Monkshood) and Delphinium. Note blackening of buds. Photos by L. Pundt

Broad mites have a wide host range and can feed on ageratum, begonia, chrysanthemum, cyclamen, dahlia, gerbera daisy, gloxinia, hibiscus, English ivy, jasmine, impatiens, New Guinea impatiens, lantana, marigold, snapdragon, verbena, and zinnia. Broad mites can also infest vegetable bedding plants, especially peppers. They may be spread among a crop via air currents, plant-to-plant contact, by workers handling infested plants and then touching uninfested plants and on hitching on whitefly adults.

Broad mites inject a toxin from their saliva as they feed. Leaves become twisted, hardened, and distorted with bronzed lower leaf surfaces. Young terminal buds can be killed, especially if high broad mite populations are present. Broad mite feeding prevents normal leaf expansion and causes a downward puckering along the leaf edges. Broad mite injury may resemble herbicide injury, certain nutrient deficiencies (boron or calcium), cold temperature injury, or several physiological disorders. Broad mite injury often occurs suddenly and may be spotty in distribution. This damage may persist long after the mites are gone.



Figures 5 & 6: Outer leaf edges turn downward, and terminal buds are killed on pepper and salvia. Photos by L. Pundt



Figure 7 & 8 & 9: Feeding damage to jasmine, English ivy, and dahlia (left to right) Photos by L. Pundt



Figure 10 & 11: Feeding damage to New Guinea impatiens and begonias. Outer leaves turn downward, and growing point is killed. Photos by L. Pundt

Life Cycle and Biology

Cyclamen Mites

High relative humidity (80 to 90%) and temperatures of 60°F favor the development of cyclamen mites. Severe outbreaks may occur in greenhouses in the fall and winter months. Females may live for up to one month and can reproduce without mating. Cyclamen mites are semitransparent and light green when viewed under a dissecting scope. Cyclamen mite females lay 2 to 3 eggs per day for up to two to three weeks. The eggs are deposited in moist, dark places in crevices and at the base of the plant. Cyclamen mite eggs are oval, smooth and about 1/2 the size of the adult female. Females live up to one month and lay up to 16 eggs. Most of the eggs will develop into females. Larvae hatch from the eggs in 3 to 7 days. The slow-moving, white larvae feed for 4 to 7 days. Adults emerge from the pupal stage in 2 to 7 days.

Broad Mites High temperatures of 70° to 80° F and 80 to 90% relative humidity favor the development of broad mites. Female broad mites lay from 30 to 75 eggs on the leaf surface over an 8 to 13-day period. Larvae hatch in 2 to 3 days and begin feeding. Adult and larval broad mites tend to be faster moving than cyclamen mites are. Broad mites can complete their life cycle from egg to adult in as little as one week's time.

Scouting

Both broad and cyclamen mites are too small to be seen without the aid of a microscope. Regular inspection of crops for their feeding damage is the best way to detect infestations. Tarsonemid mites are found in the crown of host plants, as they tend to avoid light. Cyclamen mites feed in the young, developing buds whereas broad mites feed on the underside of leaves. If

characteristic symptoms are seen, inspect samples under a dissecting microscope.

Prevention

Rogue infected plants as soon as possible. If detected early, it may be feasible to discard a small number of infested plants. Tarasomid mites can be easily spread to healthy plants by workers' hands or clothing. During scouting and other routine tasks, enter mite-infested areas last.

Biological Control

The commercially available predatory mites, *Neoseiulus cucumeris*, *Neoseiulus californicus* and *Amblyseius swirskii*, may be used preventatively against broad and cyclamen mites. However, these predatory mites must be released before populations are high and plant damage occurs. Consult with your biological control supplier for more information on their release rates.

Chemical Control

Several different miticides are labeled for both cyclamen mites and broad mites. If possible, select materials with translaminar properties that move through the leaf. High volume applications and repeat applications are frequently necessary to achieve adequate control. Not all miticides labeled for spider mites are labeled for cyclamen or broad mites.

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References

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