

## Broad mite

(Order: Acari, Family: Tarsonemidae, *Polyphagotarsonemus latus* (Banks))

### Description:

*Adult:* Adults are very tiny with the female body length of 0.2 to 0.3 mm and males about half the size of females. Adults are broadly oval and whitish to yellow-green but appear somewhat translucent except under extreme magnification. They have four pair of legs, with the front two pair widely separated from the posterior two pair. The last pair of legs appears threadlike.

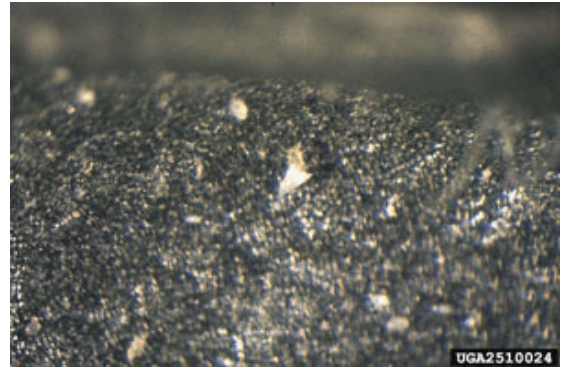
*Immature stages:* The appearance of the egg is the key characteristic generally used to verify plant infestations by broad mites. The eggs are nearly transparent with the exception of rows of whitish circular projections that give the eggs a speckled appearance. The larval and pupal stages appear similar to the adults but are smaller. The larval stage has six legs and the pupal stage has eight legs.

### Biology:

*Life cycle:* Adults move short distances by walking, but are dispersed long distances by wind or by attaching to and ‘hitch-hiking’ on winged insects such as aphids and whiteflies. Eggs are laid singly on the lower surface of young apical leaves and flowers. Average egg production is reported as 40 to 50 eggs per female. Eggs hatch in about two days and the larval and pupal development requires a total of 2 to 3 days. Adult males emerge first and will carry female pupae to younger tissues. Females emerge and generally mate immediately. Unmated females produce only males which may then mate with the female, assuring production of subsequent females. The entire life cycle requires about one week under favorable conditions and typically occurs in the youngest terminal growth. Broad mites are generally not found on fully opened leaves.

*Seasonal distribution:* Broad mites have a wide host range and can occur throughout the year in tropical climates. Reproduction does not occur below 13° C nor above 34 degrees. Temperatures of about 25° C and humid conditions are most favorable. Cold winters and hot, dry summers usually limit populations in Georgia. Rainy fall seasons provide optimal conditions for broad mites in south Georgia, and the greatest damage usually occurs at these times.

**Damage to Crop:** Broad mite has a large host range including 60 families of plants. Its vegetable hosts include beet, beans, cucumber, eggplant, pepper, potato and tomato. Damage is especially severe in bell pepper. Damage is caused by secretion of a plant growth regulator or toxin as the mite feeds, and significant damage can occur at very low



Tiny broad mite adult carrying an immature mite.



Stretching of the leaves caused by broad mite feeding.



Scarring and russetting of pepper fruit caused by broad mite.

pest density. Symptoms include leaf and fruit distortions, shortening of internodes, blistering, shriveling and curling of leaves, and leaf discoloration. Much of this can be easily confused with viral disease, micronutrient deficiency, or herbicide injury. Fruit may be deformed, split, or russeted. Infestations in pepper can cause a bronzing of terminal growth and are frequently associated with a characteristic 's'-shaped twisting of the main stem in leaves. Damage may appear for weeks after the mites have been controlled, and when combined with the difficulty in detecting mites, makes evaluation of control measures difficult and has likely led to reports of control failures.

**Management:** The broad mite's minute size and ability to damage plants at very low densities generally results in plant injury serving as the first indication of an infestation. When damage is noted, terminals of symptomatic plants should be examined under magnification to verify the presence of broad mites. Damage will usually start in small clumps in a field and can spread rapidly. Some acaricides provide excellent control, but examination of plant terminals is necessary to evaluate control success, as damage can continue to appear for two weeks after successful control.