



Tomato Russet Mite: *Aculops lycopersici*



Biology & Lifecycle: Eggs are laid on the undersides of leaves, on leaf petioles and on stems on the lower portion of plants. The two nymphal instars usually do not move far from where they hatched and tend to congregate on the edges of leaves. When damage to lower plant parts increases, the mites move up to younger foliage. As plants begin to die, mites may aggregate at the highest parts of the plants and are picked up and spread by the wind. The egg to adult period is less than a week in warm weather.

Environmental Factors: Russet mites may be present year round, but are more abundant during hot, dry weather such as occurs April-June. The source of infestations is uncertain but may arise from nightshades (*Solanum* spp.), jimson weed (*Datura stramonium*), petunia, other solanaceous plants and field bindweed (*Convolvulus arvensis*).

Adult: Very small: requiring a 14x hand lens to be observed. The mite is tapered and wedge shaped, with two pairs of legs at the broader head end and long hairs on the tapered, posterior end. Generally translucent and yellowish, tan or pink (**Figure 3**).

Nymphs: The two nymphal stages resemble smaller versions of the adults.

Host range: The russet mite feeds primarily on plants in the family Solanaceae. Vegetables that are attacked include tomatoes, eggplant, pepper, potato and tomatillo; however, in Florida damage has only been observed on tomato.

Damage: Adults and nymphs have piercing-sucking mouthparts and feeding on the undersides of lower leaves and on petioles and stems produces a greasy appearance, which becomes bronzed (**Figures 1 & 5**). Leaves may yellow, curl upwards, dry out and drop. Damage starts at the bottom of plants and moves upward and may be confused with nutritional deficiencies, plant disease or water stress. The mite was rarely damaging in Florida, but recently has increased in incidence.

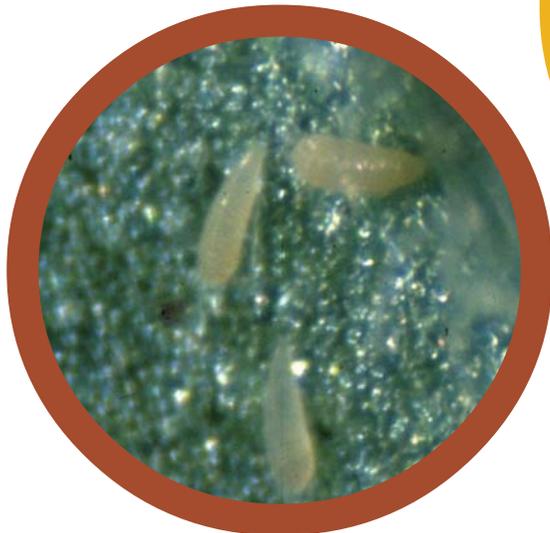
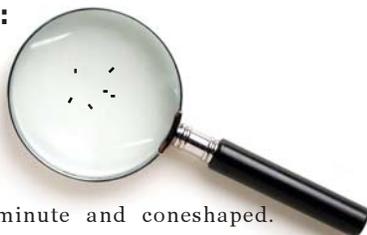


Figure 1. Progression of damage by tomato russet mite. Photograph by: Dave Schuster.

Figure 2. A large infestation of tomato russet mites on the tomato leaf. Photograph by: Lyle Buss.

Figure 3. Tomato russet mites feeding on tomato leaf. Photograph by Dave Schuster.

Actual size:



Adults are minute and coneshaped.

Monitoring:

Scouting: Because of the minute size of the mites, monitoring is usually done by watching for damage and then confirming mite presence with a hand lens or with a microscope.

Action Thresholds: None



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CULTURAL CONTROLS:

Start Clean: Transplants should be free of eggs, nymphs or adults.

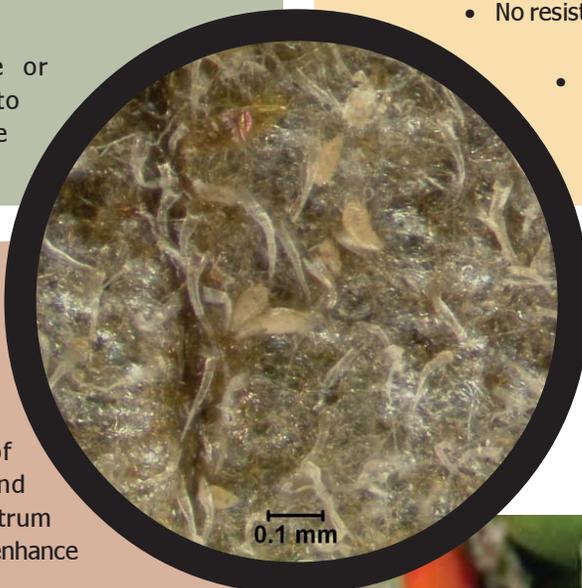
Field Manipulations: Planting in hot, dry periods should be avoided.

New crops should not be planted near infested crops and infested crops and weeds should be destroyed.

The movement of people or equipment from infested to uninfested areas should be avoided.

NATURAL ENEMIES:

- Predatory mites are the major natural enemies of russet mites.
- Timed applications of selective miticides and avoidance of broad spectrum insecticides/miticides may enhance biological control.



CHEMICAL CONTROLS:

- Miticides should be applied when damage is observed and the presence of mites is confirmed. Sulfur has long been used to manage russet mites, but endosulfan (cylcodiene organochlorine, 2A) and other new miticides are effective.

RESISTANCE MANAGEMENT:

- No resistance has been reported in Florida.
- Rotation of products of different chemical classes is an important resistance management tactic.

Figure 4. Tomato russet mites. Photograph by: Lyle Buss.

Figure 5. Leaves and stems damaged by tomato russet mite turn bronze. Photograph by: Jack Kelly Clark, University of California State-wide IPM Program.

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