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Russet Skinned Tomatoes? *Beware of Tomato Russet Mites*

Eriophyid mites are small, difficult to detect, and can cause major problems in a variety of crops. Damage caused by tomato russet mites is highlighted here.

Greenhouse tomato production often spans over the course of many months. During this extended production period, growers may encounter issues with different pests such as mites. Eriophyid mites are a group of small arthropods that can cause considerable damage. Much smaller than the twospotted spider mite, individual eriophyid mites are virtually undetectable with the naked eye. A high magnification hand lens (such as 50 to 100X) or microscope is required to see and identify these mites. Eriophyid mites are elongated, cone-shaped, and light beige or yellow in color. There are many different species of eriophyid mites, but the tomato russet mite (*Aculops lycopersici*) is one species known to specifically infest tomato plants.

An advanced infestation of tomato russet mites was recently observed on a crop of greenhouse tomatoes. In this case, the affected plants were showing symptoms of russetting on the young, developing fruit (Fig. 1). These tomatoes were small, desiccated, and have a unique “netted”



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Figure 1. Symptoms of russetting were exhibited on many tomatoes throughout the crop.

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Figure 2. In more advanced cases, the fruit had large cracks open along the sides, exposing the dark and dry inner flesh of the tomato. Additionally, the sepals and pedicel of the fruit were severely necrotic and had a desiccated appearance.

appearance on the skin. Tomatoes that were heavily damaged had necrotic cracks opening along the sides (Fig. 2). The sepals on affected fruit were necrotic and curled, with a completely desiccated appearance that extended up the pedicel. Immature fruit also had early symptoms of russetting, while flower petals and sepals became necrotic (Fig. 3). Do keep in mind that infestation typically starts at the base and works its way up the plant, so the bottom leaves become damaged first. We observed symptoms at the top of the plant because of the advance stage of development.

In addition to these symptoms on the fruit, heavily infested plants exhibited curled, thickened leaves with a dark and wrinkled appearance (Fig. 4). Many of the most symptomatic leaves also had a powdery orange or rust colored appearance (Fig. 5). Using a pocket microscope, one could see that the powdery areas were actually dense populations of russet mites (Figs. 6 and 7). Although these mites are not easily seen with the naked eye, a large enough population can be seen without difficulty.

The grower at this operation was already aware of these mites, and was taking the necessary steps toward controlling them. This situation demonstrates how issues can quickly develop, and highlights the need to scout and rapidly identify potential problems in your crop.

Management

There are some options available for treating tomato russet mites. Sulfur can be applied as a dust or a spray. Abamectin may also be applied. Several species of predatory mites have been suggested as biological control agents for these mites as well. *Amblyseius fallacis* and *Amblyseius andersoni* are two such species.

It is important to keep the area weed free, and to make sure no other plants are present that could act as an alternate host. Solanaceous plants such as peppers, petunias, or nightshade could harbor russet mites between cropping cycles. Once an infested crop is terminated, be sure to remove all plant material, as mites can easily hide and remain on fallen stems, leaves, and fruit. After removing a crop, be sure to sanitize the growing area. It may also be beneficial to leave the greenhouse empty for at least a week if possible. These steps help to ensure that russet mites are not reintroduced to subsequent crops. Keep in mind that russet mites do not overwinter outdoors where it gets cold hence they are typically observed as a greenhouse pest.

References

Natwick, E.T., C.S. Stoddard, F.G. Zalom, J.T. Trumble, J.J. Stapleton, C.G. Summers, C.F. Fouche, and N.C. Toscano. 2016. UC IPM Pest Management Guidelines: Tomato. UC ANR Publication 3470. University of California, ANR Communication Services, Richmond, CA.

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Figure 3. The flowers and newly developing fruit also exhibited symptoms of necrosis and russeting.

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Figure 4. Leaves of symptomatic plants were dark, thickened, and distorted in appearance.

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Figure 5. Symptomatic leaves were covered in a rust colored “powder”, as seen here.

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Figure 6. Upon closer inspection, the rust colored “powder” consisted of thousands of individual mites piled atop one another.



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Figure 7. Close up of russet mites.