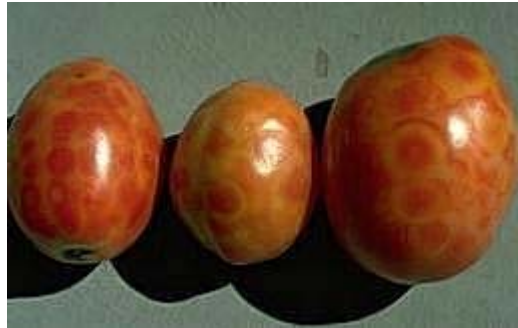


What's Wrong with My Tomatoes?

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This summer the Master Gardener office in Sonora has been inundated with calls and walk-in requests about tomatoes. Usually the client is holding a stunted, brown-leaved branch or discolored fruit, asking, “What is wrong with my tomatoes?” More often than not, the answer is **Tomato Spotted Wilt Virus (TSWV)**.

Infected plants exhibit bronzing of the upper sides of young leaves, which later develop distinct, necrotic spots. Leaves may be cupped downward. Some tip dieback may occur. On ripe fruit, chlorotic spots and blotches appear, often with concentric rings. Green fruits show slightly raised areas with faint, concentric zones.

Some nursery plants arrived at local businesses already infected. If it was your misfortune to purchase some of these plants, they showed severe disease symptoms early with large necrotic (dead) areas on young leaves and stems. Those plants, if still alive, should be destroyed.

Tomato spotted wilt virus is transmitted by thrips, western flower thrips in particular. Thrips are tiny (less than 1/20th of an inch long), cigar-shaped insects with narrow, fringed wings. Young thrips (nymphs) look similar but lack wings. Thrips come in colors that include white, yellow, brown, and black. A hand lens is usually needed for identification. Thrips feed by puncturing their host plant and sucking up cell contents; they prefer to feed in rapidly growing tissue.

To diagnose heavy infestations of thrips, look for dark shiny drops of excrement around stippled leaf surfaces. You can shake branches over white paper or check yellow sticky traps to see if thrips are present. However, even large numbers of thrips in traps or adults at flowers feeding on pollen do not necessarily indicate that control action is needed. Healthy woody plants usually tolerate thrips damage.

High infestations on developing fruits or vegetables may justify control. Plants suspected of being infected by thrips-vectored viruses such as tomato spotted wilt virus can be reliably diagnosed only by a laboratory test of plants with symptoms.

Thrips often move into gardens and landscapes when plants in weedy areas or grasslands begin to dry in spring or summer, so it is wise to avoid planting susceptible plants next to these areas or to control nearby weeds. In small gardens, thrips can be knocked off plants with a spray of water. Vigorous plants normally outgrow thrips damage; keep plants well irrigated, but avoid excessive applications of nitrogen fertilizer,

which may promote higher populations of thrips. Removing and destroying infected plants can help control the spread of virus.

If control is necessary, use an integrated program of control strategies that combines the use of good cultural practices and conservation of natural enemies with the use of least-toxic insecticides, such as applications of insecticidal soap. An insecticidal soap spray will kill only insects it comes in direct contact with at the time of application. Thoroughly spray so that all insects are covered. Be aware that many insects prefer the undersides of leaves or may be under sepals or within leaf buds. As there is no residual activity, two or more sprays 2 or 3 days apart may be necessary. Try to avoid making applications when sun is on the plant. Complete kill of pests is unlikely, but soap sprays can bring populations down to tolerable levels as part of an integrated control program that includes reliance on natural enemies.

Note: A number of plants, including cucurbits (cucumbers, squash, gourds, and melons), nasturtiums, sweet peas, and zinnias, may be injured by soap sprays; check labels and test prior to application if uncertain.

To get answers to your questions about plants and diseases, visit the Master Gardener information booth at the Sonora, Twain Harte, or Tuolumne farmers' markets. For more information on Tomato Spotted Wilt Virus, go to www.ipm.ucdavis.edu and click on "Homes," then click on either "Vegetables" or "Insects." Cornell University's plant pathology department also hosts an extensive information page with detailed photos. Go to: <http://vegetablemdonline.ppath.cornell.edu> where you can click on diseases by type of plant.

This article adapted from the University of California statewide Integrated Pest Management (IPM) Program. To contact Master Gardeners in Tuolumne County, call 533-5696; in Calaveras County, call 754-2880.