

Tomato spotted wilt (481)

Summary

- Worldwide distribution. In Australia, Cook Islands, New Zealand, Papua New Guinea. Many important crops and weeds are hosts.
- Major virus disease of tomato (TSWV). Plants stunted; leaves drooping, bronzed with dark spots and streaks (also on petioles and stems). Fruits with distortions, yellow, black or ring spots, or mosaic patterns. Symptoms variable (age, host, temperature).
- Spread: thrips. TSWV survives in volunteer plants and weeds.
- Biosecurity: see Plant Health Australia contingency plans for thrips transmitted diseases: (<https://www.planthealthaustralia.com.au/wp-content/uploads/2013/03/Thrips-transmitted-viruses-CP-2011.pdf>).
- Biocontrol: commercial strains of *Beauveria* fungus.
- Cultural control: use certified seed; check seedlings for symptoms; weed around nurseries and crops (aim for 10m weed-free area). (Note, grasses are poor hosts of TSWV.) Avoid overlapping or consecutive tomato crops, use a rotation with non-hosts; avoid excessive nitrogen; monitor with sticky traps; rogue plants with symptoms; collect and destroy debris after harvest.
- Chemical control: use soap, white or horticultural oils; in Australia, abamectin, spirotetramat, spinosad, spinetoram, *Beauveria bassiana*, are registered. Avoid broad-spectrum insecticides.



Photo 1. Stunted tomato plant infected by *Tomato spotted wilt virus* showing drooping twisted leaves.



Photo 2. Numerous small black spots on leaves infected by *Tomato spotted wilt virus*.



Photo 3. *Tomato spotted wilt virus* infection on green fruit showing irregular spotting.

Common Name

Tomato spotted wilt

Scientific Name

Tomato spotted wilt; it is caused by *Tomato spotted wilt tospovirus*. The abbreviation is TSWV.



Photo 4. Close-up of tomato fruit infected by *Tomato spotted wilt virus*. Ring spots on red fruit (left), and distortion on green fruit (right).



Photo 5. Tomato infected by *Tomato spotted wilt virus* showing fruit with reddish-yellow blotchy appearance and dark irregular spots.



Photo 6. Tomatoes showing red-yellow patterns from infection by *Tomato spotted wilt virus*.



Photo 7. Ring spots on capsicum fruit infected with *Tomato spotted wilt virus*.

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Information from: CABI (2020) Tomato spotted wilt virus (tomato spotted wilt). Crop Protection Compendium. (<https://www.cabi.org/cpc/datasheet/54086>); and Tomato spotted wilt virus in potatoes (2020) Agriculture Victoria. (<https://agriculture.vic.gov.au/biosecurity/plant-diseases/vegetable-diseases/tomato-spotted-wilt-virus-in-potatoes>); and Sherwood JL, et al. (2009) Tomato spotted wilt. The Plant Health Instructor. APS. DOI: 10.1094/PHI-I-2003-0613-02; and from Schwartz HF, Gent DH (2016) Tomato spotted wilt. High Plains Integrated Pest Management. BugwoodWiki. (https://wiki.bugwood.org/HPIPM:Tomato_Spotted_Wilt). Photo 1 Don Ferrin, Louisiana State University Agricultural Center, Bugwood.org. Photos 2,3,6,7 Gerald Holmes, Strawberry Center, Cal Poly San Luis Obispo, Bugwood.org. Photos 4&5 William M. Brown Jr., Bugwood.org.

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