e-GRO Alert


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# Tomato: Tomato Spotted Wilt Virus (TSWV)



*Tomato leaves with mottling and fruit with necrotic spotting and ringspots were observed on a plant. These symptoms are typical of what occurs with a virus. This Alert will aid in the identification of a tomato spotted wilt virus (TSWV) infection in tomato.*

Figure 1. Yellow discoloration on tomato that tested positive for tomato spotted wilt virus (TSWV). (Photo: Brian Whipker)



A few containers with tomatoes were being grown outside of a greenhouse. There were some discolored leaves on one of the plants. Upon closer inspection, a few of the shoots had yellow leaf spotting and distorted growth (Figs. 1, 2, & 3). Ringspots were not observed on any of the leaves. The plants had a heavy fruit set. Most of the tomato fruits had necrotic areas (Figs. 4, 5, & 6). Figure 7 shows a close-up of the necrotic areas on a fruit and raised rings can be seen on the fruit surface (Fig. 8). Necrotic

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ringspots are more clearly visible on the ripening fruit (Fig. 9). No Western flower thrips (WFT) were observed on the leaves. This Alert can be used as a visual tool for diagnosing TSWV symptoms on tomatoes.

The leaves were tested for tomato spotted wilt virus (TSWV) and it was confirmed with an enzyme-linked immunosorbent assay (ELISA) test. In addition, we tested samples from the fruit by carefully taking a slice of the peel and a limited amount of the interior cells. (Sampling too much plant material can negate the test.) The fruit also tested positive. If you suspect a virus problem, have the plants tested by a diagnostic clinic. You can also conduct in-house testing with ELISA kits from Agdia (http://www.agdia.com/). It is important to test multiple leaves from the same plant that is **exhibiting symptoms**.

**Management**

Once a plant has TSWV or the other common virus found in greenhouse production, impatiens necrotic spot virus (INSV), it cannot be cured. Discarding infected plants is the only option, and this will help prevent the virus from spreading further. It is important to note that some plants may be asymptomatic, but still have TSWV or INSV. Since the primary method of spreading these viruses in greenhouses is via Western Flower thrips (*Frankliniella occidentallis*) feeding, it is critical to keep them under control. This infection most likely occurred earlier during young plant production because no thrips were observed on the plant and three other tomato plants did not have any signs of TSWV.

Figure 2. Yellowing and necrosis on tomato due to a tomato spotted wilt virus (TSWV) infection. (Photo: Brian Whipker)

Figure 3. Leaf distortion on tomato due to a tomato spotted wilt virus (TSWV) infection. (Photo: Brian Whipker)

Figure 4. Fruit with necrotic patches due to TSWV. (Photo: Brian Whipker)

Figure 5. Fruit loss and necrotic patches due to TSWV. (Photo: Brian Whipker)

Figure 6. Top view of tomatoes with necrotic patches due to TSWV. (Photo: Brian Whipker)

Figure 7. Close up of necrotic fruit with TSWV. (Photo: Brian Whipker)

Figure 8. Raised rings can be seen on a tomato with TSWV. (Photo: Brian Whipker)

Figure 9. Necrotic ringspots were visible on this ripening tomato infected with TSWV. (Photo: Brian Whipker)

## e-GRO Alert

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