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Tomato Spotted Wilt Virus

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A high incidence of Tomato spotted wilt virus (TSWV) has occurred in crops in Virginia and other Mid-Atlantic states this season. Be on the lookout for this plant virus in tomatoes, peppers, peanuts, potatoes, and tobacco. The disease also affects numerous weed and ornamental plant species. The virus is vectored by at least 7 different species of thrips. In Virginia, the two main culprits are the tobacco thrips, Frankliniella fusca, and the western flower thrips, Frankliniella occidentalis. Several generations of these insects can occur in a season, and they can complete their life cycle in 2-3 weeks. The virus is picked-up at the larval stage and is found in the salivary glands of the adult. As soon as the adult begins to feed the virus is transmitted to the host. There is no cure for the virus once plants are infected.

Early symptoms of spotted wilt on tomato are difficult to diagnose. Young, infected plants may show an inward cupping of leaves, and the foliage may appear off-color or have a slight bronze cast. As the disease progresses, plants may develop dark brown to black streaks on the main stem. Occasionally the top portion of the plant appears yellow and wilts. The most characteristic symptom of spotted wilt appears on the fruit. On young fruit, white to yellow concentric rings, one-half inch in diameter, develop on the fruit kin. The area within the ring typically is raised, which gives the fruit a bumpy or warty appearance. The bright yellow rings on red, mature fruit are quite striking and are easily diagnosed as spotted wilt.

TSWV MANAGEMENT IN TOMATOES:

- There is no cure once a plant is infected with the virus.
- Management is very difficult because the virus and its thrips vectors have extremely broad host ranges.
- Infected plants should be removed immediately from the field and destroyed to prevent spread of the viral pathogen.
- Generally, controlling weeds, avoiding contaminated host plants near the vegetable crop, and eliminating thrips in greenhouses is the best way to manage TSWV.
- In many situations, the use of insecticides to control thrips has not effectively controlled TSWV.
- Other studies have shown that controlling thrips with insecticides can reduce disease incidence and spread in fields. For example, in North Carolina, the use of Admire 2F, as a transplant drench or at-planting application reduced TSWV in tomatoes from 64 to 8% in the field. The insecticide remains active in plants for up to 60 days.
- Some foliar sprays may suppress thrips populations as well. Scout fields for thrips at least weekly. Western flower thrips is much harder to kill than Tobacco thrips. Because thrips continuously move into fields from bordering vegetation and require only 10 to 15 minutes of feeding to transmit the virus, frequent sprays (at least weekly) may be needed for adequate control, which greatly inflates production costs. Some recommended foliar insecticides include: Warrior T, Fury, SpinTor 2SC, Provado1.6F, Monitor 4EC.
- (As with any insecticide application please read the label carefully and follow all directions).
- Silver reflective mulch may be used in place of black plastic to repel thrips, however, this may also delay maturity in spring plantings.

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