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Tomato Spotted Wilt Virus in Tomato and Pepper

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Reports of tomato spotted wilt virus (TSWV) outbreaks have been coming in from throughout the state. Incidence of TSWV at 40-50% has been observed in both commercial and backyard situations. The virus, which is spread by thrips, has become one of the most common disease problems of tomato in Alabama. TSWV can also attack peppers, though incidence on peppers has never reached the levels observed on tomato in Alabama.

Tomato plants infected with TSWV become stunted and often die. Initially, leaves in the terminal part of the plant stop growing, become distorted, and turn pale green. In young leaves, veins thicken and turn purple, causing the leaves to appear bronze. Necrotic spots, or ring spots, are frequently present on infected leaves, and stems often have purplish-brown streaks. Infected fruit may exhibit numerous ring spots and blotches. Fruit may become distorted if it is infected when immature.

Weeds that harbor both the virus and thrips are partially responsible for localized outbreaks of the disease. Thrips pick up the virus from infected weeds when they are in the larval (immature stage). Thrips that develop on TSWV-infected weeds are able to spread the virus to crops when they become adults.

On susceptible tomato varieties, early season insecticide applications should be used to control thrips moving in from overwintering weeds that may harbor the virus. In commercial fields, apply Admire (imidacloprid) at planting, followed by sprays of Monitor (methamidophos) plus Warrior (lambda cyhalothrin) for four weeks. Be sure to follow the directions and restrictions on the manufacturer's label. After four weeks, limit use of organophosphate and pyrethroid insecticides to avoid killing beneficial insects that naturally control thrips. Spintor (spinosad) has good activity against thrips and can be alternated with Avaunt (indoxacarb) for caterpillar control.

In pepper fields, do not use Monitor or Warrior. An effective natural enemy, the minute

pirate bug, colonizes peppers and feeds on thrips, providing control of TSWV. Spintor and Avaunt also can be used to control caterpillars in peppers.

In the past, I have suggested removing infected plants early in the season to reduce in-field spread of the disease. Research in other states has shown that there is relatively little plant-to-plant spread of TSWV. Thus, it is not necessary to remove TSWV-infected plants of susceptible varieties in commercial fields. However, a few diseased plants may occur in plantings of resistant varieties. These varieties could be infected with resistant-breaking strains of TSWV. To limit spread of new strains of TSWV, these diseased plants (including their roots) should be removed from the field and burn or buried.

For fall production this year, or for next year's crop, destroy weeds around fields or gardens where tomato or peppers are to be planted. Dandelion, annual sow thistle, chickweed, buttercup and plantain were identified as the most important overwintering host of TSWV and thrips in a North Carolina study.

Planting varieties of tomato resistant to TSWV provides the best control of the disease. The two best varieties commercially available are Amelia VR from Harris-Moran and BHN 444 from BHN Seeds. The pepper variety Stiletto from Rogers Seeds is also resistant to TSWV.

Silver reflective mulch should be used when TSWV has been a consistent problem year after year. Silver mulch will delay maturity of early plantings, however. Highly reflective mulch is available from Refec Tek Foils, Inc., (1075 Brush Hill Lane, Lake Zurich, IL 60047, telephone 888-439-6121).

More information on identification and management of TSWV can be found in ANR-895 "Tomato Disease identification", ANR-797 "Wilt Diseases of Tomato", and ANR-836 "Virus Diseases of Tomato".