Tomato Spotted Wilt Virus on Bedding Plants in South Georgia

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Nature of Work: Tomato spotted wilt virus has become a major threat to agronomic and horticultural crops in the southeastern United States. Outbreaks of tomato spotted wilt virus have occurred on greenhouse crops and bedding plants in recent years, resulting in severe losses.

Tomato spotted wilt virus has a large host range of over 550 species in 62 different plant families (4). The disease can infect a variety of plants, including both monocots and dicots, ornamental plants, vegetables and many weed species. The lettuce serotype of tomato spotted wilt virus (TSWV-L) has been a problem in south Georgia, particularly in peanuts, peppers, tobacco and tomato transplants. The impatiens serotype (TSWV-I, recently changed to Impatiens Necrotic Spot Virus) which has damaged floricultural crops in other states was recently discovered in Georgia (3). Therefore, this study was conducted to 1) determine if bedding plants in south Georgia were infected, and 2) if infected, with which serotype (TSWV-L or I).

Plants from bedding plant growers and public landscapes in five south Georgia counties (Coffee, Colquitt, Grady, Harris and Tift) were sampled April through June, 1991. Detection of infected plants was determined by enzyme-linked immunoabsorbent assay (Agdia, Inc., Elkhart, Inc.) using replicated whole leaf tissue samples.

Results and Discussion: Plants testing positive for TSWV-I and L are shown in Table 1. Approximately 7% of the total number of samples tested positive for TSWV-I while 6% tested positive for TSWV-L. This report confirms the presence of TSWV-I in Georgia. TSWV-I has previously caused economic losses to floricultural crops in North Carolina. Three plants not previously known to be infected with TSWV were found in this study (*Gazania, Tithonia* and *Viola*). It could not be determined from this study whether plants testing positive from the landscape had been infected in the greenhouse before being transplanted into the landscape.

Significance to Industry: Greenhouse operations in south Georgia were found to have plants infected with TSWV. TSWV has been described as "the most devastating virus the greenhouse industry has ever known" (1). TSWV symptoms include chlorotic or necrotic lines, blotches, and rings as well as petiole, stem and veinal necrosis. Symptoms may vary between species, cultivars, time of year and plant age. TSWV is vectored by thrips, with the Western flower thrip being most common. Thrips are known to be a major pest of ornamentals in Georgia (2). Growers should adopt appropriate cultural and chemical management programs to prevent the spread of TSWV to other greenhouse plants and the public landscape.

Literature Cited

1.Allen, W.R. 1991. Get the jump on thrips and TSWV. Greenhouse Grower 9(6):78-82.
2.Oetting, R.D. and J.R. Roberts, Jr. 1986. Thrips, a major pest problem on ornamentals. Proc. Southern Nurserymen's Res. Conf. 31:121.
3.Ruter, J.M. and R.D. Gitaitis. 1993. First report of tomato spotted wilt virus on bedding plants in Georgia. Plant Disease 77:101.
4.Sether, D.M. and J.D. DeAngelis. 1992. Tomato spotted wilt virus host list and bibliography. Oregon St. Univ. Special Rpt. 888. 16 p.

Table 1. Plants testing positive for the impatiens serotype (TSWV-I) and lettuce serotype (TSWV-L) of tomato spotted wilt virus in south Georgia.

TSWV-I
- *Catharanthus roseus*
- *Chrysanthemum leucanthemum*
- *Digitalis purpurea*
- *Eustoma grandiflorum*
- *Gerbera jamesonii*
- *Gomphrena globosa*
- *Impatiens wallerana* 'New Guinea'
- *Petunia x hybrida*
- *Phlox divaricata*
- *Phlox drummondi*

TSWV-I
- *Ageratum houstonianum*
- *Gazania* spp.
- *Tithonia rotundifolia*
- *Viola x Wittrochiana*

TSWV I & L
- *Impatiens wallerana*
- *Nicotiana alata*