



Management of Tomato Yellow Leaf Curl Virus (TYLCV) in Tomato in North Florida¹

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Introduction

A disease caused by tomato yellow leaf curl virus (TYLCV) that threatens both commercial tomato production fields and home gardens was identified in 1997 in south Florida (Polston et al., 1999). The disease spread north rapidly and TYLCV was first identified in north Florida and south Georgia in the Fall of 1998 (Momol et al., 1999). TYLCV is transmitted by adult silverleaf whiteflies (*Bemisia tabaci* Biotype B = *Bemisia argentifolii*). TYLCV is not transmitted through seed or by mechanical transmission. The presence of other cultivated or wild hosts of silverleaf whitefly (i.e., cotton) during summer may lead to additional whitefly migration to tomato. During late spring, summer, and early fall, growers need to monitor whitefly populations very closely and follow recommendations in this Fact Sheet. TYLCV has a broad host range from several plant families including Solanaceae (tomato, tobacco), Malvaceae (cheeseweed), and Fabaceae (common bean, lentil).

Symptoms

The impact of TYLCV on tomato production can be severe. If plants are infected at an early stage, they won't bear fruit and their growth will be severely stunted. Other symptoms that are typical for this disease are: yellow (chlorotic) leaf edges, upward leaf cupping, leaf mottling, reduced leaf size (Figures 1 and 2), and flower drop. Identification based only on symptomatology is unreliable, because similar symptoms can be caused by other viruses or various growing conditions. Proper identification of TYLCV is available at Plant Disease Clinics in Florida. Send suspected samples through University of Florida County Extension offices.



Figure 1. Note yellowing of edges, cupping, distortion, and reduced size of the leaflets.

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Figure 2. Note yellowing of edges, cupping, and distortion of leaflets.

Management Recommendations

1) Use virus-free transplants. Transplants should be treated with Pymetrozine (Fulfill). Transplant houses should use Admire or Platinum at least 7 days before shipping (for protection during the first week in the field). Transplants should be produced in areas well away from tomato production fields. Virus and whitefly free transplants should be planted.

2) Whitefly control. Imidacloprid (Admire) or Thiamethoxam (Platinum) should be used in the setting water at transplanting or through the drip irrigation system. Monitor whitefly populations by scouts throughout the season. Combinations of the following insecticides could be applied if the incoming adult whitefly population is high: a pyrethroid with an organophosphate, carbamate or Thiodan; or soap with a pyrethroid or Thiodan. Apply based on the "Label" information. Do not apply Imidacloprid (Provado), Thiamethoxam (Actara) or products with similar chemistry if plants have been treated with Admire or Platinum. Highly UV-reflective mulches (metalized) and low rates of

crop oil (0.25 -0.50 percent) could be used as whitefly repellents to reduce whitefly feeding and virus transmission.

After the efficacy of the Admire or Platinum application begins to decline, a secondary spread of whiteflies will need to be controlled. The same insecticides recommended above plus Agri-Mek with oil may be used in rotation. In addition, the secondary spread of whiteflies can be reduced using Knack and Applaud. They are insect growth regulators (i.e. interfere with normal growth and development of nymphs) and may be applied when "nymphal densities exceed 5 per 10 leaflets (terminal leaflet of the 7th-8th leaf from the top of 10 plants/2 acres)" (Schuster and Polston, 1999). Because of the mode of action (growth regulator) of these insecticides, do not expect immediate response. They are not toxic on contact with the insect but do cause treated female adults to lay infertile eggs.

3) Sanitation. Learn to identify early symptoms of TYLCV and rogue infected and infected-looking plants from field and place in plastic bags immediately at the beginning of the season, especially during first 3-4 weeks. Spread of any whiteflies to healthy plants should be prevented.

Tomato fields should be cleaned up immediately after harvest (especially at the end of spring season for north Florida). The tomato free period during winter is an advantage of north Florida growers.

Plantings of tomatoes should be separated in time and space from plantings of hosts (cabbage, collards, cucurbits, tobacco, soybean, cotton and weeds) which are good sources of whiteflies.

TYLCV resistant tomato cultivars should be used if available for your production area.

These recommendations were modified to north Florida conditions from those presented by Schuster and Polston (1999).

Literature Cited

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