

LOUISIANA PLANT PATHOLOGY

DISEASE IDENTIFICATION AND MANAGEMENT SERIES

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Southern Bacterial Wilt

Ralstonia solanacearum (Smith) Yabuuchi et al.

Southern bacterial wilt (or bacterial wilt) is a destructive disease of tomato and other solanaceous crops as well as a wide range of ornamentals. This disease is caused by the soil-borne bacterium *Ralstonia solanacearum*, which attacks over 200 plant species in more than 50 plant families. The bacterium enters plant roots through wounds and disease development is favored by high temperatures and wet soils. The pathogen is spread within fields by the movement of infested soil, in surface water and through the handling of infected plants.

Initial symptoms of southern bacterial wilt are a loss of turgidity of leaves and stems, giving the plants a limp appearance. In the early stages, these plants may recover overnight, but as the disease continues to develop, this is followed rapidly by drying of the leaves and permanent wilting and death of the plant. Brown, sunken cankers are often visible at the base of the plant; this is accompanied by discoloration of the vascular system and eventually the pith. A brown rot of the roots may also be observed.

Ralstonia solanacearum exists as a number of races and biovars that are differentiated based primarily on host range and geographic distribution. Race 1 affects a wide variety of plants, including tomato and other solanaceous crops; race 1 biovar 1 is the strain endemic to the southeastern U.S. *Ralstonia solanacearum* race 3 biovar 2 occurs throughout much of the world but is not currently present in the U.S. and Canada. This strain grows at cooler temperatures than our native strain and is a major problem on potatoes and other solanaceous crops as well as ornamentals, most notably geraniums. Quarantines are in effect to prevent its accidental introduction.

Management of southern bacterial wilt presents a real challenge. Soil fumigation may reduce the incidence of disease early in the season, but it has not provided long-term control. Recommendations for the management of southern bacterial wilt include avoid planting susceptible crops in infested fields, avoid late plantings of tomatoes in areas known to be infested and use of long-term rotations with non-host crops (such as corn, beans and cabbage). There are no commercially available resistant/tolerant varieties that we can recommend.



Fig. 1. Progression of symptoms of southern bacterial wilt of tomato.



Fig. 2. Basal canker and internal discoloration of the stem due to southern bacterial wilt.



Fig. 3. Bacterial streaming from an infected tomato stem.

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