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Extension FactSheet

Plant Pathology, 2021 Coffey Road, Columbus, OH 43210-1087

Stewart's Bacterial Wilt and Leaf Blight of Corn

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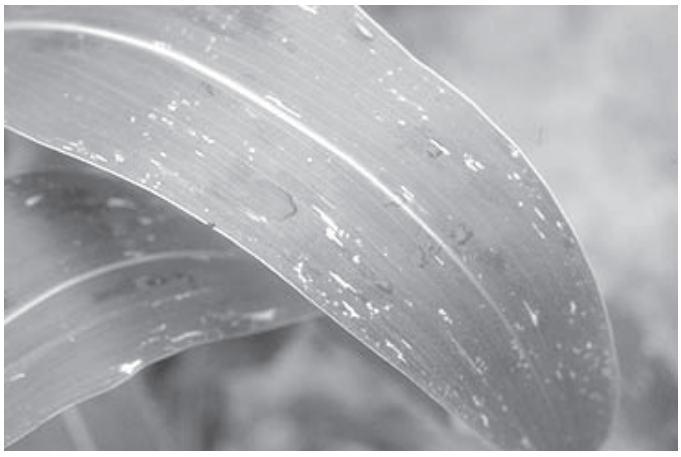
Stewart's bacterial wilt and leaf blight is a serious disease of sweet, dent, flint, flower, and popcorn in the United States. This disease is especially a problem in the eastern portions of the corn belt. In Ohio, damage from Stewart's wilt varies from year to year, but severe blighting of leaves can be found in some fields each year. In sweet corn, severe damage results when infected seedlings wilt and die. Dent corn is more resistant than sweet corn and actual yield losses are low except when severe leaf blight occurs soon after tasseling on a high percentage of the plants in the field. Seedling wilt occurs on more susceptible dent corn hybrids or in fields with high populations of the corn flea beetle as seedlings emerge. Greatest damage occurs in seasons following mild winters. Mild winter temperatures favor the overwinter survival of the insect vector of the bacterial pathogen.



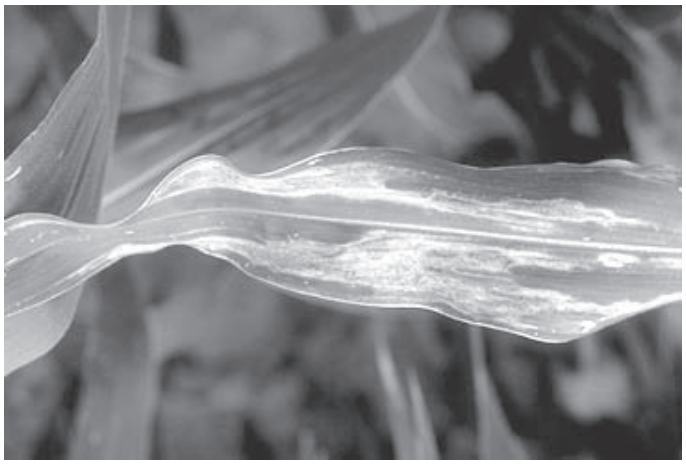
Stewart's bacterial leaf blight—Vector: Corn Flea Beetle feeding injury.

Symptoms

Young plants that become diseased usually wilt and die. Affected young plants develop yellow to white stripes on the lower leaves. These plants generally produce several tillers. The plants that do not die are stunted and usually produce no ears. Leaf blight can be recognized as long, pale green streaks on leaves. As the streaks enlarge, portions turn pale yellow and eventually become brown. Streaks may run the entire length of the leaf and the margins of the streaks are wavy. A few characteristic lesions may be seen early in the season, but numerous lesions are usually not detected until after tasseling. This increase in susceptibility after tasseling is probably a physiological response to the reproductive phase of the corn plant.

Disease Cycle

The disease is caused by the bacterium, *Pantoea stewartii,* which enters the plant through feeding wounds of the insect vector, the corn flea beetle (*Chaetocnema pulicaria*). The bacterium overwinters in the body of the flea beetle adult. Upon emergence from hibernation during early spring, the beetles feed on and inoculate young corn seedlings with the bacterium. Once inside the leaf tissue, the



Stewart's bacterial leaf blight—elongated lesions with wavy margins.

bacterium multiplies in the vascular tissues and initiates the characteristic leaf symptoms.

The severity of Stewart's bacterial leaf blight can be predicted based on the temperature of the preceding winter months. A severe outbreak of leaf blight generally occurs when the sum of the average temperatures for December, January, and February is greater than 95. When the sum of the average temperatures for these months is less than 90, the amount of disease is usually negligible. This forecasting system is based on the ability of the corn flea beetle to survive overwinter. Cold winters reduce beetle populations and limit disease development and spread. Environmental conditions, like persistent snow cover and heavy crop residues, may favor beetle survival even with low winter temperatures. These conditions should be considered when forecasting disease outbreaks.

Control

1. All sweet corn varieties are susceptible to wilt in the first leaf stage. A few are resistant by the second leaf stage and many are resistant in the third and fourth leaf stage. Dent corn hybrids are more resistant to wilt than sweet corn. Dent corn hybrids vary greatly in their resistance to the leaf blight stage phase of the disease. Consult your seed supplier for information on resistant varieties and hybrids.
2. Insecticide sprays to control early feeding of the flea beetle are recommended on sweet corn. Application of an insecticide should begin at first emergence of seedlings and be repeated every 3-4 days as needed. Application must be started early enough to prevent the wilt stage of the disease. Because dent corn is more resistant to wilt, insecticide sprays are not recommended. Insecticide spray, as well as seed applied and in-furrow applied insecticides are available for control of flea beetles. Consult insecticide labels for proper rates and classes of corn labeled.

Additional information is available from your local Extension office or The Ohio State University web site Ohioline at: **http://ohioline.ag.ohio-state.edu**

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