



Michigan State University

FACT SHEET

Stewart's Wilt of Corn



Stewart's wilt is a disease of corn, caused by the bacterium *Pantoea (Erwinia) stewartii*. The bacterium is carried in the digestive tract of the corn flea beetle. It is transmitted to corn plants during feeding by corn flea beetles (CFB, *Chaetocnema pulicaria*) carrying the disease.

It is most serious when it infects corn seedlings, but can infect corn plants at any stage of development.



Actual size —
corn flea beetle adult

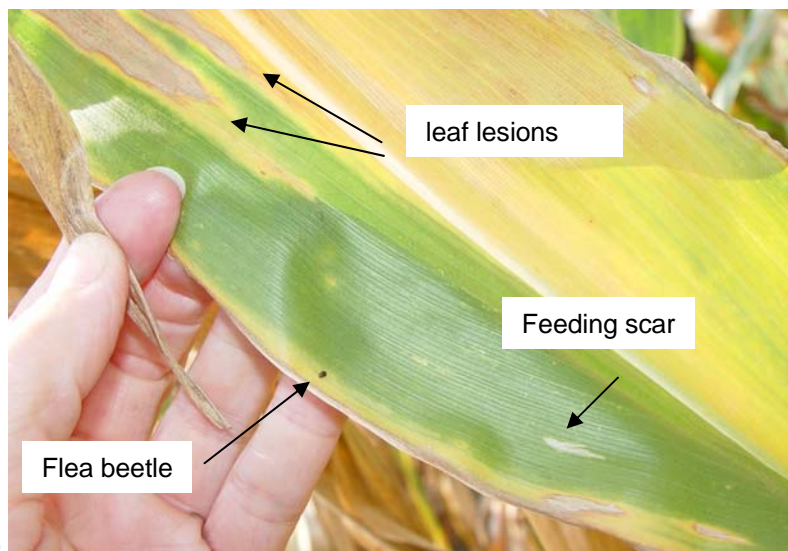
Although Stewart's wilt is usually considered a problem only on seed corn inbreds and sweet corn, it was widely reported on field corn in Michigan late in the season, in August and September of 2006. In most cases this year, it will probably not affect yield significantly. The implications for next growing season are still unknown. It depends largely on winter temperatures, and how many beetles carrying the disease survive the winter. Mild winter temperatures favor survival of the beetle, which overwinters in the top few inches of soil and litter. A model developed at Iowa State University to predict CFB survival uses average monthly air temperatures for December, January and February. When temperatures for two months are greater than 24°F a moderate to high risk of Stewart's wilt is possible. Beetles carrying the bacterium that survive overwinter could infect seedling field corn next spring.

Adult CFB and feeding scars

Disease severity depends on the variety and on plant age at the time of infection. Infection during the seedling stage produces the most severe injury including systemic infection, stunting or death of plants. Early plantings of seed corn inbreds and sweet corn hybrids are likely to have the most severe symptoms. Adult beetles emerge in spring and early summer from soil of grassy areas near fields and feed on corn leaves, depositing bacteria in feeding wounds. Beetles feeding on infected tissue acquire the bacterium and spread it further. Bacteria invade the water-conducting tissue of the plant, disrupting nutrient and water flow, and causing leaf lesions, leaf wilting, barren stalks, or plant death. Leaf lesions appear as long wavy streaks, that first look water soaked, then turn yellow, and eventually brown. Entire leaves may die if the disease is severe, and stalks may be predisposed to fungal rots. Stewart's wilt has not been considered a problem on northern-grown field corn, so hybrids have not necessarily been selected for tolerance to the disease.

Stewart's wilt in 2007

It is unknown whether or not Stewart's wilt will be a problem on field corn in 2007. It depends on temperatures this winter and survival of CFB carrying the bacterium. There are several steps you can take in 2006. Check with your seed corn dealer to select hybrids with tolerance to Stewart's wilt for your 2007 planting. Insecticidal seed treatments may be of benefit for early control of flea beetles to reduce feeding during the seedling stages, but won't last throughout the season. Watch your plantings for infestations of flea beetles early in the season on the 2007 corn crop. Check the Field Crops CAT Alerts at: <http://www.ipm.msu.edu/field-cat.htm> or contact your local Extension office for updated recommendations in 2007.



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