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Diagnosing Stewart's disease in field corn

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Diagnosing Stewart's disease in field corn

Abstract

Two commercial cornfields in south central Iowa were diagnosed with Stewart's disease the week of May 22. Although commercial field corn does show variable tolerance to the disease and widespread economic loss is not likely, these fields are proof that the disease can infect some hybrids. Even among exposed plants within a given hybrid, some may be infected and others may not. In one field south of Albia, 2 percent of plants had been killed, 12 percent showed classic leaf symptoms, and 86 percent were symptomless. The fields with infected plants will be monitored as the season progresses

Keywords

Entomology, Agronomy

Disciplines

Agricultural Science | Agriculture | Agronomy and Crop Sciences | Entomology | Plant Pathology

INTEGRATED CROP MANAGEMENT

Diagnosing Stewart's disease in field corn

Two commercial cornfields in south central Iowa were diagnosed with Stewart's disease the week of May 22. Although commercial field corn does show variable tolerance to the disease and widespread economic loss is not likely, these fields are proof that the disease can infect some hybrids. Even among exposed plants within a given hybrid, some may be infected and others may not. In one field south of Albia, 2 percent of plants had been killed, 12 percent showed classic leaf symptoms, and 86 percent were symptomless. The fields with infected plants will be monitored as the season progresses. As mentioned in previous articles in the ICM newsletter this spring, there is no rescue treatment available for plants infected with Stewart's disease.

Three elements are needed for field diagnosis of Stewart's disease:

1. yellow streaks that follow leaf veins that later develop reddish brown dead areas in the center of the streak;
2. as the infection progresses, the plant wilts, with newest leaves wilting first; and
3. the crown, or growing point, of the infected plant rots and turns soft and brown. (If the roots and mesocotyl are injured, other pathogens that can damage the crown may have entered the plant.)

Yellow streaking in corn may not be associated with Stewart's disease and streaking from nondisease factors is common in many fields. Some hybrids develop yellow streaks on their leaves that mimic initial Stewart's disease symptoms. Minor injury from sandblasting, insect feeding, or other physical damage can result in yellow streaking.



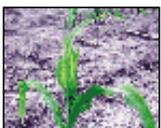
A corn plant with Stewart's disease streak that is beginning to wilt.

[Enlarge](#) [1]



Rotted crown of corn plant infected with Stewart's disease.

[Enlarge](#) [2]



Stripes on this corn plant are from environmental factors, not from Stewart's disease.

[Enlarge](#) [3]

If you find Stewart's disease symptoms in a field, flag a representative check strip of 100 plants. Count the number of plants that are wilting, the number that show Stewart's disease leaf streaking, and the number unaffected. Monitor these 100 plants at least weekly. Symptoms should progress rapidly, and the check strips allow you to monitor the stand condition and hybrid performance to help make management decisions.

If you suspect Stewart's disease, laboratory analysis will confirm your field diagnosis. Dig whole plants that show symptoms, wrap them loosely in dry paper toweling, place them in an unsealed plastic bag, and submit them to the Iowa State University [Plant Disease Clinic](#) [4]. Your [county extension office](#) [5] can help you with the appropriate forms.

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<http://www.ipm.iastate.edu/ipm/icm//ipm/icm/2000/6-5-2000/stewfieldcorn.html>

Links:

[1] <http://www.ipm.iastate.edu/ipm/icm//istewstreak.html>

[2] <http://www.ipm.iastate.edu/ipm/icm//icrown.html>

[3] <http://www.ipm.iastate.edu/ipm/icm//ienvirostripe.html>

[4] <http://www.exnet.iastate.edu/Pages/plantpath/pdcintro.html>

[5] <http://www.exnet.iastate.edu/Counties/state.html>

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