



Extension FactSheet

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Gibberella Stalk Rot of Corn

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Stalk rots appear in all corn producing counties of Ohio and are the most important diseases of corn in the state. Direct losses to stalk rots have been estimated at 5-15% annually, but actual losses vary from year to year and from one location to another. In seasons particularly favorable for disease development, plants may die prematurely. Such early killed stalks have lightweight ears and poorly filled kernels. More frequently, however, the greatest damage is caused by stalk breakage or lodging. Lodging makes harvesting difficult and many ears are left in the field. Corn producers should be aware of the major stalk rots in the state because of their prevalence and potential for causing severe losses.

Gibberella stalk rot, caused by *Gibberella zeae*, and anthracnose stalk rot caused by *Colletotrichum graminicola*, are the most common and destructive stalk rot diseases in Ohio. *Diplodia* stalk rot

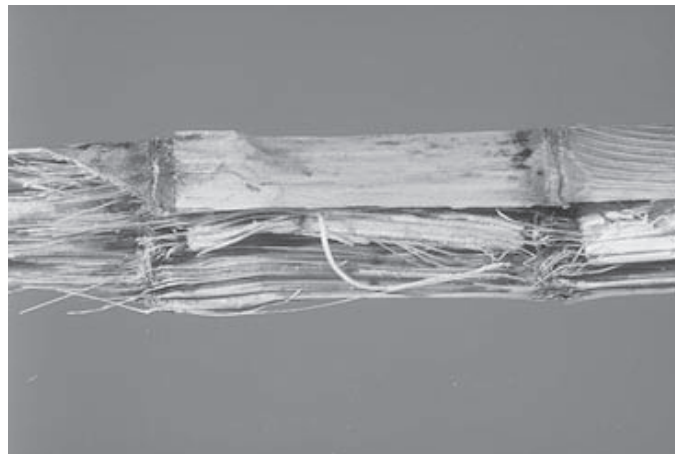
(*Diplodia maydis*) can also be found. Specific information on anthracnose stalk rot can be obtained from fact sheet AC-22 entitled “Anthracnose Leaf Blight and Stalk Rot of Corn.”

Symptoms

Gibberella zeae survives from year to year on infested corn stalks and roots left in the field. The fungus typically invades the base of the corn stalk. Tissue is usually resistant up to silking, after which the fungus spreads from the roots to the stalks. Occasionally, invasion may occur at nodes above ground, behind the leaf sheath, or through wounds made by corn borers, hail, or mechanical injury. If plants are infected before full maturity, symptoms first appear as a sudden onset of grayish-green color of the leaves, the lower part of the stalk turns from dark green to light tan, and the pith inside the stalk



Gibberella stalk rot—note small, black perithecia near node.



Gibberella stalk rot—note rotting of stalk pith and pink coloration.

becomes soft. When diseased stalks are split, the pith usually has a reddish or pinkish discoloration and shows signs of deterioration.

Factors Affecting Stalk Rots

Research has proven that plants subjected to stress are more susceptible to stalk rot. Stress results in early maturation and a reduction in carbohydrates in the stalk tissue. Stalk tissues low in carbohydrate levels are more susceptible to invasion by stalk rotting fungi. Corn plants damaged by fungal leaf blights or root and stalk feeding insects are more susceptible to stalk rot. Extreme weather conditions, unbalanced soil fertility, and high plant populations are predisposing factors that contribute to high stress conditions.

Control

Corn growers should remember that every cornfield is unique. The factors favoring stalk rot in one field may not be important in other fields. Hybrids that stand up well in one area of the state may be severely lodged at other locations. This could be due to soil type, cultural practices, crop rotations, or other factors. Although no one control measure will eliminate stalk rot problems, the following recom-

mendations should be considered and adopted according to the grain needs and management system used by the grain producer.

1. Select well adapted hybrids with good standability and resistance to leaf blight disease.
2. Control insects, both rootworm and stalk borer.
3. Follow fertilizer recommendations based on soil tests, and maintain proper nitrogen to potassium balance.
4. Use plant populations no higher than recommended by the seed supplier for the hybrid.
5. Rotate crops. Corn following soybeans often has less stalk rot and higher yield than continuous corn.
6. Harvest early to avoid lodging and lost ears in the field.
7. Use a tillage system which chops corn residues and covers them with soil when possible. Incorporating residues into the soil hastens their decay and disease organisms die. Reduced tillage systems used in combination with crop rotation can reduce stalk rot by providing adequate moisture throughout the growing season.

Additional information can be obtained from your local Extension office or from The Ohio State University web site Ohioline at: <http://ohioline.ag.ohio-state.edu>

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