

# Corn Disease Profile II

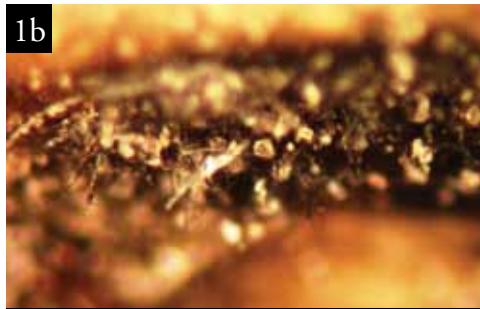
## Stalk Rot Diseases

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2. Fusarium Stalk Rot



1. Anthracnose Stalk Rot



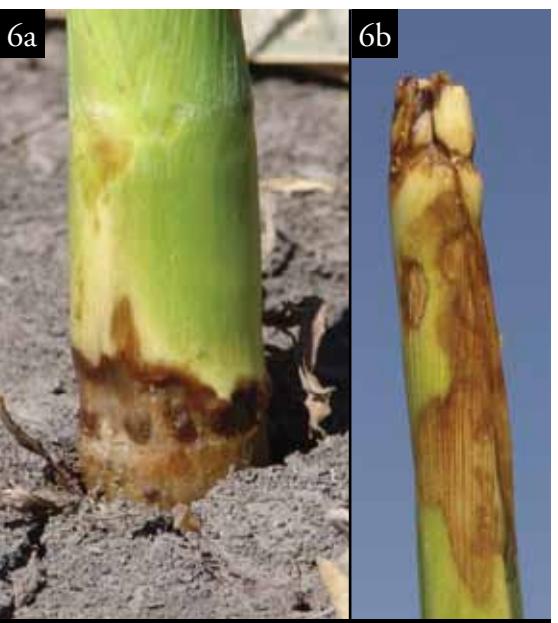
3. Gibberella Stalk Rot



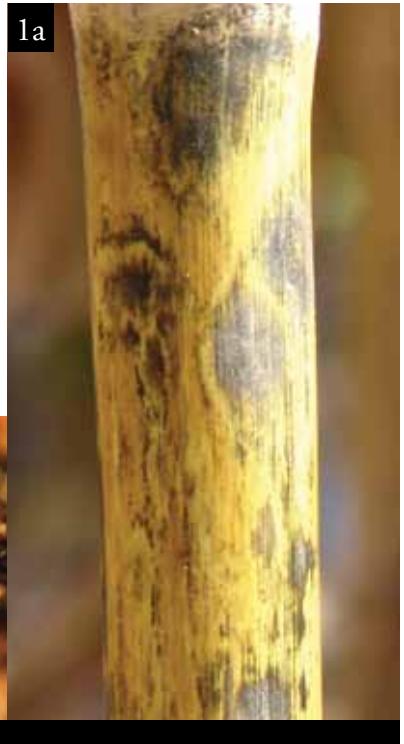
4. Diplodia Stalk Rot



5. Charcoal Rot



6. Bacterial Stalk Rot



## Stalk Rot Diseases

Stalk rot can be caused by several common opportunistic pathogens. Disease development is strongly favored by any stress to the plant (see below) so it is important to manage the crop to minimize potential stress whenever possible. Choose hybrids with resistance to stalk rot diseases. Foliar fungicide applications will not necessarily prevent stalk infection, but may protect the plant against foliar diseases. Loss of leaf area may lead to cannibalization of stalk tissue and compromise stalk integrity. The use of tillage to promote degradation of infected residue has had mixed results on stalk rot development.

## Risk Factors and Stressful Conditions Favoring Stalk Rot Development

- Foliar diseases
- Moisture stress
- Plant injury
- Loss of leaf area
- Unbalanced soil fertility
- High plant populations
- Extreme temperatures
- Infected crop residue
- Cloudy weather
- Continuous corn
- Susceptible hybrids

Disease	Description
<b>1. Anthracnose Stalk Rot</b> <i>Colletotrichum graminicola</i>	Infected stalks can be recognized by the presence of shiny black lesions visible on the outer rind of the stalk. The pathogen also may kill the upper plant (top dieback) and cause foliar blight. Whisker-like fungal reproductive structures (setae) may be visible with a high quality hand lens ( <i>Figures 1a and 1b</i> ).
*Management: C, N, R	
<b>2. Fusarium Stalk Rot</b> <i>Fusarium verticillioides</i> , <i>F. proliferatum</i> , <i>F. subglutinans</i>	Fusarium stalk rot is a common disease favored by dry weather prior to silking and warm, wet weather after silking. White cottony fungal growth may be visible on the outside of the stalk at the node(s); the inside of the stalk may develop pink or salmon discoloration ( <i>Figures 2a and 2b</i> ).
Management: C, N	
<b>3. Gibberella Stalk Rot</b> <i>Gibberella zaeae</i> (asexual stage <i>Fusarium graminearum</i> )	Gibberella stalk rot may be difficult to differentiate from Fusarium stalk rot. The disease often causes pinkish-red discoloration inside the stalk that may be accompanied by small black fungal reproductive structures called perithecia ( <i>Figure 3</i> ).
Management: C, N, R	
<b>4. Diplodia Stalk Rot</b> <i>Diplodia maydis</i> (syn. <i>Stenocarpella maydis</i> )	The pathogen causing Diplodia stalk rot also can cause a serious ear rot disease. It produces tiny, black fungal structures, called pycnidia, that give infected stalks and kernels a rough texture ( <i>Figure 4</i> ).
Management: C, N, R	
<b>5. Charcoal rot</b> <i>Macrophomina phaseolina</i>	Charcoal rot may develop in several crops, such as corn, soybean, sorghum, and alfalfa. It produces tiny, black, fungal survival structures, called microsclerotia, inside the lower stems and stalks that give it the appearance of charcoal dust ( <i>Figure 5</i> ).
Management: C, N, R	
<b>6. Bacterial Stalk Rot</b> <i>Erwinia chrysanthemi</i> pv. <i>zeae</i>	Bacterial stalk rot may develop anytime during the season and especially in corn in saturated soil when temperatures exceed 90°F. The pathogen may infect upper or lower plant parts and rapidly lead to complete plant collapse that is often accompanied by a foul odor ( <i>Figures 6a and 6b</i> ).
Management: C, N, R	

**Photo Credits:** Figure 3 – Erick DeWolf, Kansas State University; Figure 4 – The Ohio State University Extension Plant Pathology

**\*Management Codes:** **C** – cultural practices, such as crop rotation, tillage, or irrigation timing; **R** – hybrids resistant to these or other stalk rot diseases and stalk-boring insects; **N** – management may not be necessary, practical, or possible