

### Disease Facts

- Caused by the fungus *Gibberella zeae*
- Occurs wherever corn is grown throughout the world
- Infects other cereals like wheat, barley, oats, and rye
- Overwinters in infected crop residue of corn or other cereals
- Ascospores produced in perithecia are disseminated to corn plants by wind and rain splash
- Insect injury often allows pathogen to enter the plant
- Can infect corn at the leaf sheaths, brace roots, or roots. Infection continues from roots into lower stem
- Secondary cycles of disease are by conidia produced within disease lesions
- Infection often occurs after pollination. Disease can progress rapidly with warm, wet weather during corn reproductive stages
- Environmental and physiological stresses may weaken the plant and allow disease development

### Impact on Crop

- Greatest damage to corn crop is usually caused by stalk breakage or lodging
  - Lodging slows harvest and usually results in some ears left in field
  - If ears contact ground, grain quality may be reduced



### Impact on Crop (continued)

- Stalk deterioration disrupts water and nutrient flow, and plants may die prematurely
  - Affected plants have lightweight ears and poorly filled kernels (low test weight)
- *Gibberella zeae* may also infect ears

### Symptoms

- Rotting at roots, crown and lower internodes
- Perithecia (small black fungal fruiting structures), may develop on the stalk surface near the node (can be scraped off with fingernail)
- Pink to reddish coloration of pith and vascular strands (bundles)
- Pith of the inner stalk may deteriorate leaving only the vascular bundles intact
- Destruction of the nodal plate
- Later stages – plant turns gray-green, internodes turn straw colored or dark brown and are easily pinched between fingers
- Late season snapping of stalks at the node
- Gibberella may look similar to Fusarium stalk rot
- Closely related fungi cause these diseases
  - Distinguish by stalk color
    - Gibberella – red/pink
    - Fusarium – white/pink/salmon



## Gibberella vs. Fusarium



Gibberella stalk rot

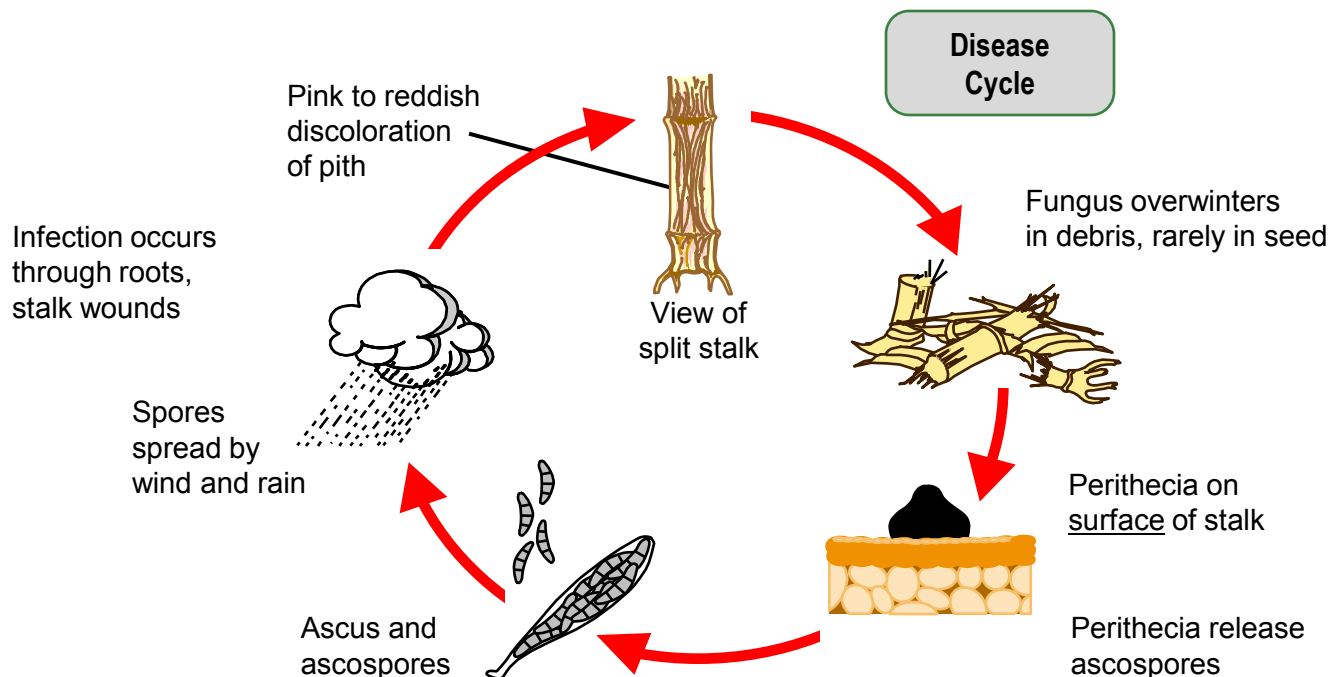


Fusarium stalk rot

## Management

- Select hybrids with good stalk strength and resistance to leaf diseases
- Rotate crops. Corn following soybeans often has less stalk rot and higher yield than continuous corn
- Use a tillage system that chops and incorporates residue to break it down
- Do not use plant populations higher than recommended for the hybrid
- Soil test and follow fertilizer recommendations; maintain proper nitrogen:potassium balance
- Reduce stresses when possible -- stalk rots are favored by plant stress following pollination
- Control leaf diseases with fungicides if necessary
- Control corn rootworm and corn borer. Pioneer brand hybrids with Herculex® *Insect Protection* traits are available to help manage these pests
- Scout pre-harvest to determine stalk condition and schedule harvest based on stalk quality as well as grain moisture

® Herculex *Insect Protection* technology from Dow AgroSciences and Pioneer Hi-Bred. Herculex is a registered trademark of Dow AgroSciences, LLC.



**PIONEER**  
A DUPONT BUSINESS

Pioneer Agronomy Sciences ®, TM, SM Trademarks and service marks of Pioneer Hi-Bred. © 2010, PHII