Common Rust of Corn

Disease Facts

• Fungal disease caused by *Puccinia sorghi* pathogen
• Favored by moist, cool conditions (temps in the 60s and 70s)
  • Hot, dry conditions typically slow or stop development
• Spreads by windblown spores from southern corn growing areas
• Typically progresses as corn matures in late summer if conditions are persistently wet and cool
• More often a problem in seed production and sweet corn fields than in hybrid fields
• Less likely than southern rust to cause significant yield loss to hybrid corn, so important to distinguish common and southern rust
• Hybrids differ in resistance

Impact on Crop

• Disease lesions reduce functional leaf area and photosynthesis
• Less sugars are produced, so plant uses stalk carbohydrates to help fill kernels
• Stalks are weakened and stalk rot potential increases
• Yield losses may result from poorly filled kernels and lodging-induced harvest losses
  • Significant damage to upper leaves early in the life of the hybrid results in higher yield losses
  • If damage is confined to lower leaves or occurs after corn is well-dented, yield losses are lower
• Latest-planted corn in an area is at higher risk for yield loss

Common Rust Disease Cycle

*(Puccinia Sorghi)*

- Spores are blown in from the southern U.S. Wind and rain move spores to plant.
- Fungus overwinters as teliospores, which germinate in the spring.
- Infected plant
- Urediospores (repeating stage)
- Pustule development, urediospore production
- Secondary spread by wind and rain
Symptoms

- Lesions begin as flecks on leaves that develop into small tan spots
- Spots turn into elongated brick-red to cinnamon brown pustules with jagged appearance
- Found on both upper AND lower leaf surfaces (unlike southern rust)
- Pustules turn dark brown to black late in the season
- Occurs on leaf only, NOT on sheaths, stalks, ear shanks and husk leaves

Common vs. Southern Rust:

Management

- Genetic Resistance
  - Pioneer researchers screen hybrids and parent lines for resistance and provide ratings for customers
  - Most hybrids are rated from "3" to "6" on a scale of 1 to 9 (9=resistant), indicating there are clear differences between hybrids, but complete resistance is not available
  - Growers should choose hybrids with a "5" or "6" rating in areas that frequently experience common rust

- Scout corn to detect common rust early
- Monitor disease development, crop growth stage, and weather forecast
- Apply a foliar fungicide if:
  - Rust is spreading rapidly or likely to spread and yield may be affected
  - Disease exceeds threshold established by your state extension plant pathologist
  - Commonly used fungicides include Aproach®, Headline®, Headline SC, Headline AMP®, PropiMax® EC, Quadris®, Quilt®, Quilt Xcel®, Stratego®, Stratego® YLD and Tilt®
  - Disease is wind-borne and does not overwinter in US; therefore, rotation and tillage are not effective.

Common vs. Southern Rust:

<table>
<thead>
<tr>
<th>Common vs. Southern Rust:</th>
<th>Common Rust</th>
<th>Southern Rust</th>
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</thead>
<tbody>
<tr>
<td>Ideal Environment</td>
<td>Cool to warm and moist 60-77 ° F</td>
<td>Warm to hot and moist 77+ ° F</td>
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<tr>
<td>Appearance of Pustules</td>
<td>Large, circular to elongated</td>
<td>Small circular, pinhead appearance</td>
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<tr>
<td>Pustule (spore) Color</td>
<td>Brown to cinnamon-brown</td>
<td>Reddish orange</td>
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<tr>
<td>Location of Pustules</td>
<td>Upper and lower leaf surfaces Infects leaves only</td>
<td>Upper leaf surface May also infect husks</td>
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</tbody>
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