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## STALK ROT DISEASES IN CORN

The 2020 growing season has given us good heat and rainfall to keep our corn crop on track in most areas, but each fall we want to monitor stalk integrity as we approach and enter harvest. Several factors can contribute to the development of stalk rot and lodging, but most stem from conditions causing damage to the corn root tissue resulting in entry points for disease infection.

### OVERVIEW

#### 2020 FACTORS CONTRIBUTING TO STALK ROTS

- Warm and wet conditions following pollination
- Compacted soils, side-wall compaction, and saturated soils set the stage for stalk rot issues by negatively affecting early developing root systems

Once stalk or crown rot pathogens infect the tissue, the disease progression is then moderated by additional stresses to the plant. These stress conditions may include anything that affects photosynthesis or nutrient movement through the plant. Some examples include: diseases that reduce leaf surface area, drought stress, saturated soils, nutrient deficiency, insect damage, hail damage or reduced solar radiation.

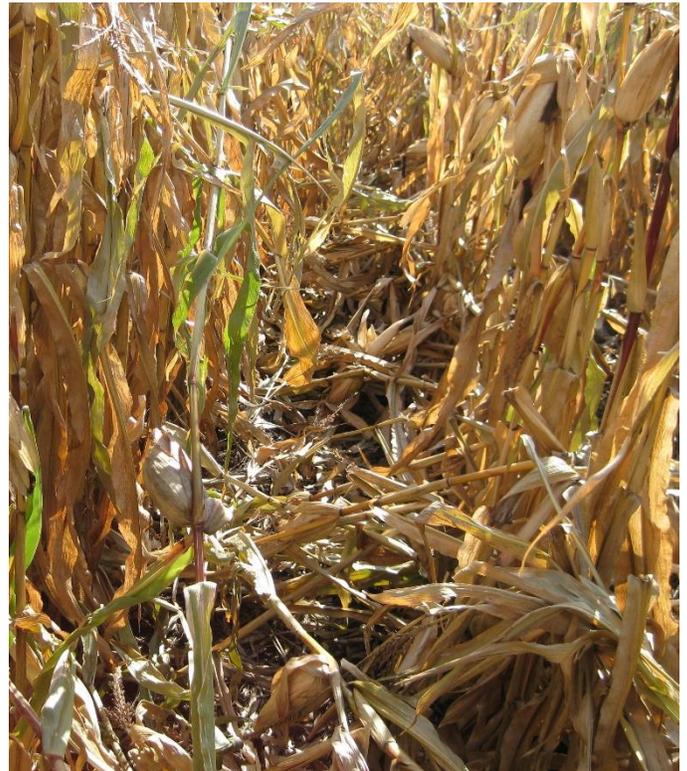
During grain fill, the corn plant will cannibalize the lower stalk and leaf tissue in order to fill the ear. The end result is premature dead or dying plants, lodging, and some degree of yield loss.

For most of our area affected plants have not shown symptomology until late grain-fill, so yield loss should be minimal. The bigger concern is harvest-ability. The longer that harvest is delayed, the more exposure our corn fields have to late fall storm and wind damage. Now is the time to build a harvest plan based on grain moisture as well as the overall stalk integrity of your fields.

### HARVEST MANAGEMENT

A push test or pinch test can be used to help determine stalk quality. For a pinch test, simply “pinch” the base of the stalk with your fingers. If the stalk is easily collapsed, the stalk integrity is poor. For the push test, grab the stalk and push it over into the next row, or at a 30 degree angle. Any stalk that collapses has poor stalk quality and lodging may become an issue. Look at several areas throughout the field to estimate how many plants may have stalk quality issues. If stalk quality is poor in more than 10% of the plants, consider adjusting harvest schedules and take the affected fields first.

THE FOLLOWING ARE COMMON STALK ROTS IN CORN:



## FUSARIUM STALK ROT:

- Can produce a pink or “salmon” color on affected plant tissues (but doesn’t always show color)
- Lacks the dark colored or black “specks” associated with other stalk rots
- Favors warm and dry conditions prior to pollination and warm, wet conditions after pollination.
- Symptoms include yellowing portions of the stalk with deteriorated pith that collapses easily when pinched.



## ANTHRACNOSE STALK ROT:

- Visual symptoms don’t usually show up until later in the season, but infection can occur anytime throughout the growing season
- Infection happens primarily through damaged root or crown tissue and is favored by humid, cloudy and warm weather after silking
- Anthracnose “top dieback” can occur as the fungus plugs and restricts water movement in vascular tissue, causing plant tops to turn yellow, red or necrotic
- Produces shiny black lesions on the outside of the stalk – often with a “barcode” appearance
- The internal stalk tissue is often blackened or discolored, and the stalk can be easily crushed when pinched



## GIBBERELLA STALK ROT:

- Caused by the same fungus responsible for Gibberella ear rot
- Distinguished by the pink to red discoloration of the stalk pith
- Signs of this disease are small, round, blue black structures on the surface of the stalk that can be easily scraped off, usually located around a stalk node
- Infection usually occurs shortly after pollination, and will can be more prevalent under warm and wet conditions



## DIPLODIA STALK ROT:

- Produces dark pycnidia that are embedded in the stalk surface – black, small, spore-producing structures that can’t be scraped off the stalk
- Stalk pith will also disintegrate but will not have a red color
- Infection favors warm, wet conditions after silking, and spores are spread by wind and rain
- Diplodia can be more severe in minimum- and no-till fields, as well as in continuous corn



Sources:

University of Missouri, Corn Stalk Rots, <https://ipm.missouri.edu/IPC/M/2013/8/>

Corn-Stalk-Rots/CREC NDSU – Goss's Leaf Blight

Purdue University Extension, Diseases of Corn – Stalk Rots, BP-89-W

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