Watch for Stalk and Ear Rots in Corn

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Abstract
As the 2014 growing season draws to a close, agronomists and farmers are reminded to scout for stalk and ear rots of corn. Stalk rots are likely to be a problem this year particularly in fields where leaf diseases occurred and fields with high yield potential. Diplodia ear rot is already prevalent in some fields.

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Watch for Stalk and Ear Rots in Corn

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As the 2014 growing season draws to a close, agronomists and farmers are reminded to scout for stalk and ear rot of corn. Stalk rots are likely to be a problem this year particularly in fields where leaf diseases occurred and fields with high yield potential. Diplodia ear rot is already prevalent in some fields.

Stalk rots

Stalk rots may result in premature death of plants (Figure 1) or reduced yield potential. Diplodia stalk rot has been observed in central Iowa.
Figure 1. Stalk rot results in premature plant death.

This stalk rot is easily recognized:

1. Look for minute black specks (pycnidia) buried in the rind of the lower nodes of the corn stalk (Figure 2). In moist conditions, millions of spores may be extruded from the pycnidia (Figure 3).
2. Splitting the stalk will reveal shredded pith.
Figure 2. Tiny black specks (pycnidia) embedded in the rind are diagnostic for Diplodia stalk rot.
Figure 3. *Diplodia* spores are extruded from pycnidia when humidity is high.

Gibberella stalk rot may also be prevalent this growing season since conditions have been favorable for infection and disease development. This stalk rot is best identified from the pink to red shredded pith tissue. Black specks may also be observed at the lower nodes, but these are slightly larger than those observed with *Diplodia*, and can be easily scraped off the rind surface using a fingernail.

**Identifying at risk fields**

_Northern corn leaf blight_ and Goss's leaf blight are widespread throughout the state particularly on susceptible hybrids and these fields should be scouted for stalk rot around black layer. When photosynthesis is compromised as a result of reduced green leaf area due to leaf disease, stalk rots are often a problem. This is because the corn plant is dedicated to filling grain and will cannibalize carbohydrates in the stalk if necessary. Consequently, a good place to start scouting for stalk rots is in fields with leaf blights.

Fields with high yield potential may also be at risk for stalk rots. The cool wet conditions that we had from blister (R2) onwards have favored grain fill. Since _kernel abortion is unlikely after dough_ (R4), the corn plant will do everything to finish off the grain at the expense of using carbohydrates stored in the stalk, consequently leading to increased risk of stalk rots.

**Ear rots**

Ear rots result in reduced grain quality. *Diplodia* ear rot is favored by cool, wet weather during early ear development. The disease is easily recognized. Look for a dead ear leaf while scouting fields (Figure 4). Oftentimes, a white mold or "black pepper" may be visible in the husks at the base of the ear. Peeling back the husks will reveal the same dense white mold growing up from the base of the ear (Figure 5). No mycotoxins have been associated with *Diplodia* ear rot in the U.S.
Figure 4. A dead ear leaf is symptomatic of Diplodia ear rot.
Figure 5. Diplodia ear rot. Note the dense white mold growing from the base of the ear. Pycnidia may also be present on the husks.

Cool, wet weather after silking also favors Gibberella ear rot. When the husks of the ears are peeled back, a pink to red mold developing from the tip of the ear is diagnostic for this ear rot. Mycotoxins (DON and zearalenone) are associated with Gibberella ear rot.

Management of stalk and ear rots

Fields in which greater than 10 percent of the plants have stalk and/or ear rots should be scheduled for early harvest. Identifying these diseases can also help with management for future years. Since stalk and ear rot pathogens survive in infested residue, rotation to a nonhost crop such as soybean may help reduce inoculum. Hybrid susceptibility to stalk and ear rots differs among hybrids.

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