

Delayed Harvesting of Corn Increases Risk of Stalk Lodging

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Record high energy costs have growers considering field drying corn in an effort to reduce costs associated with drying grain. However, very little is free these days and there are certain risks associated with delaying harvest. For example, damage resulting from fungal stalk rots, and ear molds producing mycotoxins, can offset the benefits of field drying.

Stalk rots

- Fungi that cause stalk rots are present in every cornfield.
- Stalk rot is considered a disease problem when it occurs before physiological maturity.
- However, after maturity, all corn plants start to decay as part of a natural process of recycling organic matter and nutrients.
- Stalk rot fungi infect plants through the roots or insect and mechanical wounds, and first attack the thin-walled cells of the center, pith tissue of the corn stalk.
- The outer rind of the corn stalk is composed of thick-walled cells capable of supporting the stalk temporarily. Eventually it will decay too.

Why the concern? Diseased stalks have only half or less of their original strength. If harvest is delayed or high winds occur, such plants easily lodge, and harvest becomes almost impossible.

How to reduce the risk? Scout. Rotted stalks are easily crushed with a pinch of the fingers, while healthy stalks remain firm near harvest. At least 100 plants, scattered throughout the field, should be assessed for stalk rot. If more than 15 percent of the stalks are rotted (stalks easily crushed), harvest should be scheduled for as early as possible, because significant lodging is possible.

Additional information: *Corn Stalk Rot in Iowa* (IPM 50)

Ear rots, Storage molds and Mycotoxins

- Ear-rot fungi normally infect corn in the field but they can continue to develop on grain in storage if conditions are favorable.
- Infection of grain by storage mold fungi can occur in the field, but most of the damage occurs in storage.
- Mycotoxins are poisonous compounds produced by some fungi, including some that infest grain.

Why the concern? Some of the fungi that cause ear rots and storage molds also produce mycotoxins, which are poisonous to many livestock and/or humans. Vomitoxin, zearalenone and fumonisins are produced by the fungi *Gibberella zeae* and *Fusarium moniliforme*, which cause Gibberella and Fusarium ear rot. Currently, growers in southeastern Iowa are experiencing problems with Aspergillus ear rot, caused by the fungus *Aspergillus flavus*, and aflatoxins produced by the fungus. Aflatoxin levels are regulated by the Food and Drug Administration (FDA) because they are known carcinogens. Many elevators in southeastern Iowa are testing for aflatoxin, and turning away corn which contains greater than > 20 parts per billion (ppb) of aflatoxin.

How to reduce the risk? Scout. At least 100 ears on plants scattered throughout the field should be assessed for ear rot. Look for pink, white or greenish-yellow colored molds growing on and between kernels. If more than 10 of the 100 ears have extensive mold (greater than 10-20 percent of ear covered with mold), harvest should be scheduled for as soon as possible.

Also, grain infested with fungi tend to be lighter in weight. Therefore, set combine fans higher to reduce the amount of lightweight infested grain being harvested. Damaged kernels are more susceptible to fungal infection in storage than intact ones. So adjust the combine to reduce kernel damage, e.g., slow the header speed, slow the cylinder/rotor speed, and install filler plates between the cylinder bars. Ensure storage bins are clean of debris from the previous season. Shelled corn should be dried to 15 percent moisture or less within 24 to 48 hours of harvest, and cooled to 35 to 40 degrees F for the duration of winter to reduce fungal growth and mycotoxin production.

Additional information:

- Aflatoxins in Corn (PM 1800)
- Corn Ear Rots, Storage Molds, Mycotoxins and Animal Health (PM 1698)
- Reducing Aflatoxin in Corn During Harvest and Storage (<http://pubs.caes.uga.edu/caespubs/pubs/PDF/B1231.pdf>)
- Aflatoxins in Corn (<http://www.ca.uky.edu/agc/pubs/id/id59/id59.pdf>)
- Iowa Grain Quality Initiative (<http://www.iowagrains.org>)