

## Diplodia Rot in Corn: Stalk, Ear, and Kernel

Common fungi that can cause stalk and ear rot diseases in every corn field every year include *Gibberella*, *Anthracnose*, *Diplodia*, and *Fusarium*. Diplodia stalk and ear rot is caused by the fungus *Diplodia maydis*, which commonly infects the stalk and ears several weeks after silking. Proper identification of the disease can help to evaluate management options for next year in an effort to reduce potential yield losses.

### Diplodia Stalk Rot

#### Favorable Conditions

In general, stalk rot development is favored by late season stresses such as an excess or lack of moisture, nutrient deficiency or imbalance, excessively cloudy weather, insects, diseases, wind/hail, or other invasive injury to the leaves, stalks, or root. In reduced tillage systems, the severity of Diplodia stalk rot has the potential to increase where debris from a previous crop accumulated on the soil surface.

#### Symptoms

Symptoms of infected stalks with Diplodia rot are a straw-brown discoloration of the lower nodes and internal disintegration of the pith, leaving only vascular tissues intact (Figure 1). After plants turn brown, embedded small black dots, called pycnidia, appear around the lower nodes of the infected stalks (Figure 2).

#### Losses

Diplodia stalk rot may reduce yield potential. As unharvested, lodged plants die from infection, the normal grain filling process stops. This can result in a reduction in kernel size and grain weight and potential ear drop. Grain quality can also be affected by ear rots as the ears on lodged plants come in contact with the soil.

#### Scouting and Stalk Quality

When corn reaches the dough and denting stage, scouting for stalk rots is recommended. Evaluation of stalk quality helps to identify where stalk rots are occurring on your farm and can assist in making decisions on which fields to harvest

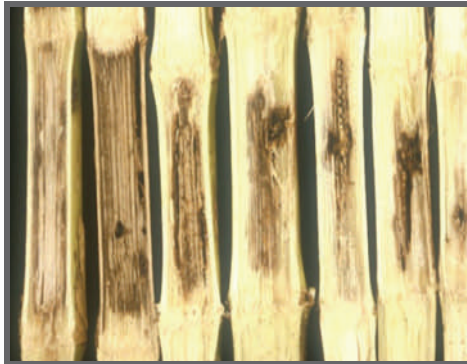


Figure 1. Diplodia rot infects the pith tissue of corn stalks.



Figure 2. Embedded black dots (pycnidia) around the lower nodes of corn stalk.



Figure 3. Diplodia ear rot infection.

first. Scouting also aids in planning for hybrid selection or crop rotation for the next year. Fields with heavy infestations of leaf diseases should be watched closely for stalk rots.

The pinch and push tests are two methods used to evaluate stalk quality. Conduct either test on 10 plants in a row at several locations in the field. The pinch test is conducted by squeezing the second or third node above the ground. If the stalk is crushed, stalk quality is compromised. The push test is conducted by pushing each stalk at a 45° angle. If it breaks, stalk quality has been reduced. If more than 10% of the stalks lodge or are of poor quality, then the field should be slated for early harvest.

### Diplodia Ear Rot

#### Favorable Conditions

Wet weather within the first 21 days after silking favors the development of Diplodia ear rot. Greatest losses may occur when rainfall is above average from silking to harvest, or when insects or birds damage the ear during development.

Corn hybrids vary in their level of susceptibility to Diplodia ear rot. However, due to the erratic nature of the disease, most hybrids are not well characterized and any hybrid can be infected under favorable conditions.

#### Symptoms

Infected ears develop a white to gray mold that begins at the base of the ear and develops toward the tip (Figure 3). With

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severe infection, the entire ear turns gray to brown and completely rots; a symptom known as “mummification”.

### Management

Scout fields with a history of Diplodia stalk and /or ear rot, even if management practices have been employed in the past. Certain strategies can help manage both Diplodia stalk rot and ear rot, such as:

- Tillage to bury infected residue.
- Crop rotation to help reduce the inoculum load.
- Reducing moisture, nutrient, and disease stresses during the growing season.
- Proper plant populations to decrease plant stress.
- Rotating corn genetics in continuous corn.

Other strategies target the ear rot or stalk rot stage specifically. Consider the following management options to help maintain good stalk health and help reduce the incidence and severity of Diplodia stalk rot:

- Select hybrids that are more tolerant to stalk rots and have good standability.
- Plant corn hybrids with insect protection traits such as Genuity® SmartStax™, Genuity® VT Double PRO™, or Genuity® VT Triple PRO™ Corn.
- Fungicide applications when foliar diseases are present at high levels to help minimize stalk cannibalization during grain fill.

The following management strategies may help reduce the amount of Diplodia ear rot infection:

- Select hybrids with better tolerance to Diplodia ear rot.

- Plant hybrids with different relative maturities and/or different GDU requirements to flowering to mitigate the risk of all of the corn flower during peak environmental conditions for Diplodia ear rot.
- Limit damage from ear feeding insects and birds that may compromise husk coverage after pollination.

### Grain Drying

Proper drying and storage of grain are important when Diplodia ear rot is present. Consider the following management practices for harvesting and storing grain from fields with established ear rot:

- Allow corn to dry in the field to 22 to 25% moisture.
- Harvest early to prevent ear rot, if stalk lodging is a concern.
- Dry corn to 13 to 14% moisture prior to storage.
- Store grain at cool temperatures between 36° and 44° F after drying.
- Check grain periodically for temperature, wet spots, and insects.
- Clean the bins thoroughly before storing.
- Apply antifungal treatments to the stored grain.

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