

DISEASES OF CORN

Diplodia Ear Rot

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Diplodia ear rot, caused by the fungus, *Stenocarpella maydis*, has become a common and troublesome fungal disease on Indiana corn. The increase in no-till or reduced-till acreage, plus continuous corn without rotation are factors that favor Diplodia ear rot. Hybrid susceptibility and weather also contribute to disease development.

This bulletin describes:

1. How to recognize the disease
2. A description of the conditions that favor disease development
3. How to minimize losses
4. How to handle diseased grain after harvest

Recognizing the Disease

Diplodia ear rot is easy to recognize when present (Figure 1). There is grayish or grayish-brown mold on and between the kernels, and usually only on part of the ear.

The disease typically starts at the base of the ear and progresses toward the tip (Figure 2). Occasionally, disease symptoms occur only at the tip-end or middle part of the ear.



Figure 1. The white to gray mold on the kernels of this infected ear is characteristic of Diplodia ear rot.



Figure 2. This photo shows Diplodia ear rot progressing from the base of the ear.

Infected ears also weigh noticeably less than uninfected ears.

Another diagnostic feature of Diplodia ear rot is pycnidia, the spore-producing structures of the fungus. Pycnidia appear as black specks that may be scattered on the husks, cobs, and sides of kernels (Figure 3).

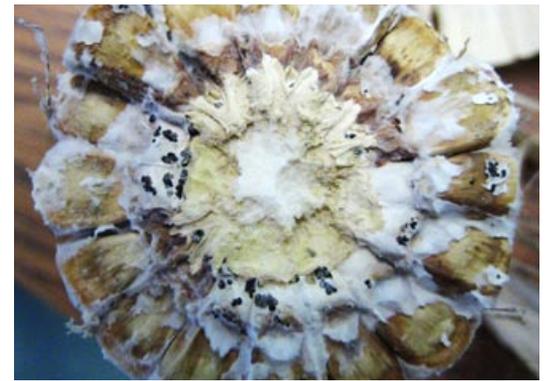


Figure 3. Spore-producing pycnidia appear as black specks on infected ears.

Understanding the Disease Cycle

Pycnidia overwinter on corn debris and are the source of infection for the following year. Dry weather prior to silking, followed by wet conditions at and just after silking favor Diplodia infection.

Ears are most susceptible to this disease during the first 21 days after silking. Ear-worm damage at the ear shank is often associated with the disease (Figure 4).

Minimizing Economic Losses

Diplodia-infected corn will result in potentially significant discounts when graded at the first point of sale. The lighter kernels caused by the disease will lower the test weight of a sample. Kernels from a

sample that show cob rot, mold infection, and surface mold damage are hand picked out of the sampling screen and graded as part of total damaged kernels (TDK) (Figure 5). The lightweight, friable nature of Diplodia-infected ears also results in more cobs and kernels being ground up during the combine shelling operation, resulting in higher levels of broken corn and foreign material (BCFM).



Figure 4. Earworm damage is often associated with Diplodia ear rot. This ear shows an earworm entry point at its base.



Figure 5. Diplodia-infected grain (right) is easy to distinguish from healthy grain.

Diplodia-infected kernels easily break during post-harvest handling, increasing the amount of fine material in a storage bin. These fine particles decrease airflow during aeration, which increases the potential for spoilage. Pre-cleaning, especially after drying and before delivering and storing the grain, is highly recommended to remove the lighter, damaged kernels, cob pieces, fines, and foreign material. Pre-cleaning will help minimize discounts and improve corn storability.

Storing Infected Grain

Proper storage of Diplodia-infected corn is crucial. Drying the grain to 15 percent moisture will stop further growth of the fungus. However, other fungi that can grow at 14 to 15 percent moisture will find it easy to invade Diplodia-damaged kernels, which can cause further spoilage, damage, and self-heating.

If Diplodia ear rot is significant, dry grain to below 14 percent moisture and cool to below 50°F as quickly after harvest as possible. Infected grain should be stored at 30°F. Limit storing Diplodia-infected grain to the cold weather season. No Diplodia-infected corn should be held into the following summer.

Managing the Disease

To prevent a re-occurrence of Diplodia ear rot, tillage following a corn rotation is encouraged. Rotation out of corn will allow corn residue to degrade, reducing the presence of the pathogen.

Corn hybrids vary in their susceptibility to Diplodia ear rot. In areas where the disease is problematic, consider planting a resistant variety. Check with your local seed dealer to find information on the availability of resistant varieties.

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