

# Not All Corn Is The Same



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**M**onetarily, it is always a bonus when we can purchase cheap corn to feed our livestock. However, corn is susceptible to a number of ear- and kernel-rotting fungi that reduce the yield, quality and feeding value of the grain.

The more common corn ear- and kernel-rotting fungi include Fusarium kernel or ear rot (most widespread in Illinois), Gibberella ear rot or red ear rot, and Aspergillus ear rot. In addition, there are several other fungi that occur occasionally in Illinois: Nigrospora ear rot or cob rot, Diplodia ear rot, Gray ear rot, Penicillium rot, Trichoderma ear rot, Cladosporium kernel or ear rot, Black ear rot, Rhizopus ear rot, Physalospora ear rot and Rhizoctonia ear rot.

I've heard early reports that Diplodia ear rot (DER) is showing up in some Illinois corn fields this year, and I received a call about whether it is safe to feed to livestock. I will answer that question, but first a little background information on DER.

DER is a fungal disease of corn caused by the pathogen *Stenocarpella maydis*. DER was common during the early 1900s, but rotating crops may have helped to minimize its prevalence. When we have years of abundant rainfall during the growing season, disease severity can be high in certain fields. The disease is most severe in fields planted in continuous corn, especially when the previous corn crop residues are left on the soil surface.

Symptoms of DER include the appearance of a white, cottony fungal growth between kernels that usually starts at the base of the ear. Later, the white mold will change to a grayish-brown growth over the husks and kernels. Severely affected ears may be obvious as the husks turn down and brown well before the rest of the plant. A specific characteristic of DER is the appearance of raised black fruiting bodies of the fungus on moldy husks or kernels; but, these

black bodies usually form later in the season. In some cases, no symptoms appear on the leaves of infected plants.

While DER is not as common as Fusarium or Gibberella ear rot, it can be just as destructive. DER can cause significant damage to crops with loss of yield and decrease in grain quality. Infected ears are very lightweight and may be totally rotted.

Diplodia-affected corn in the U.S. does not appear to contain mycotoxins; thus, it is not regarded as a feeding risk to livestock. However, laboratory confirmation is recommended if there is any uncertainty as to the identity of an ear rot, since several ear rot diseases of corn can be associated with high levels of mycotoxins. The nutritive value of Diplodia-affected corn may be reduced, and some animals refuse the feed. It may be possible to overcome palatability problems by blending it with adequate amounts of normal corn.

Storage is important. Damaged grain, regardless of reason, should not be mixed with good grain. DER-infected kernels break easily during shelling and handling, which can result in more fine material in the bin. Drying to 15 percent will stop growth of *Stenocarpella* in kernels. However, the rot has opened the kernel to invasion by other storage fungi that can grow at 15 percent moisture, such as *Aspergillus glaucus*. Thus, corn affected by DER should be dried to below 14 percent, cleaned, and cooled to below 50 degrees F as soon after harvest as possible. Also, Diplodia-affected corn should not be stored into the summer.

Although cost savings are important to producers, the health and performance of the livestock are critical to the survivability of the operation. In the case of DER, it is important to test the corn's nutritive value before feeding it to livestock in order to adequately balance rations. In addition, it is still important to conduct a toxin analysis before feeding it to livestock. Other fungi that produce molds that create harmful mycotoxins may also be growing. Δ

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