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# How Delayed Harvest Might Affect Ear Rots and Mycotoxin Contamination

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# How Delayed Harvest Might Affect Ear Rots and Mycotoxin Contamination

## **Abstract**

The corn harvest is later than it has been any time in recent memory, and the prolonged moist conditions are conducive for molds to develop on grain in the field. Over the past few days we have received numerous reports of ear rots developing in the field and questions concerning mycotoxin production when conditions are cool but wet.

## **Keywords**

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## **Disciplines**

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### How Delayed Harvest Might Affect Ear Rots and Mycotoxin Contamination

By Alison Robertson and Gary Munkvold, Department of Plant Pathology

The corn harvest is later than it has been any time in recent memory, and the prolonged moist conditions are conducive for molds to develop on grain in the field. Over the past few days we have received numerous reports of ear rots developing in the field and questions concerning mycotoxin production when conditions are cool but wet.

#### Cladosporium ear rot

Apart from Fusarium, Gibberella and Diplodia ear rots, we are starting to see and hear of more reports of Cladosporium ear rot. Cladosporium ear rot symptoms we have seen are dark, greenish-black, blotched or streaked kernels that are scattered over the ear (Figure 1). In some cases, the pericarp has split to reveal clumps or tufts of dark mold growth. In addition we have seen the ear rot develop as dark green, fuzzy growth that grows on and between the kernels (Figure 2 and 3). This fuzzy growth looks very similar to the fuzzy growth associated with Trichoderma ear rot, though Trichoderma is usually a more intense green (Figure 4). Microscopic examination is necessary to definitively distinguish between the two fungi. Cladosporium ear rot is often associated with insect, hail or frost damage.

There are no reports of economic losses due to either Cladosporium or Trichoderma ear rot. Furthermore, no associated mycotoxin issues have been reported. If the percentage of damaged kernels is 5 percent or less, the grain is still acceptable as No. 2 corn. However, since corn ears can be infected with more than one ear rot simultaneously, mycotoxin contamination of grain should not be ruled out. All grain coming from fields suspected of being moldy should be tested for mycotoxins.

#### How will cold, wet weather affect ear mold development and mycotoxin contamination?

Unfortunately there is a lot of high moisture corn still in the field and current weather conditions are contributing little to dry down. Kernel moistures above 18 percent favor the growth of all ear mold fungi. Temperature affects the rate of growth of ear mold fungi. Cool temperatures slow the growth of most fungi, but they are still active, and the potential for mycotoxin production still exists. Past experiences indicate that extended wet falls, and therefore delayed harvests often result in elevated levels of DON (vomitoxin).

#### Management decisions

Fields should be scouted to determine if ear rots are prevalent. Problem fields (greater than 10 percent of the ears have mold on 10-20 percent of the grain) should be harvested as soon as possible, and dried to 15 percent moisture or less to prevent further mold growth. For more details on drying and storage of grain see [2009 Corn Quality Issues – Field molds](#). When harvesting, ensure the combine is properly adjusted to avoid additional damage to the kernels. Cleaning the grain with a rotary cleaner can reduce mycotoxin levels by removing fines which tend to have higher mycotoxin levels than whole kernels. Grain from fields with obvious mold problems should be tested for

mycotoxin contamination. See [Risk of Mycotoxins Associated with Hail Damaged Corn](#) for guidelines on testing for mycotoxins.



**Figure 1. Dark kernels scattered around the ear are symptoms of Cladosporium ear rot. (Robertson)**



**Figure 2. Cladosporium ear rot may also develop as dark (brown to green) fuzzy mold growing on and between kernels. (Robertson)**



**Figure 3. Cladosporium ear rot on grain (Munkvold)**



**Figure 4. Trichoderma ear rot (Munkvold)**

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