

INTEGRATED CROP MANAGEMENT

Ear rot and mold problems

Corn ear rot problems are often related to how long the corn stands in the field in the fall, the amount of second-generation European corn borer damage, and the late-season weather. This year, corn dry-down is progressing more slowly than anticipated and there was a healthy second generation, so there are more ear rots being reported than usual. The dry weather that was widespread earlier in the summer resulted in some *Aspergillus* infection (the fungus that produces aflatoxins). Other reports of ear rots included *Fusarium*, *Gibberella*, *Diplodia*, and *Penicillium*. Corn that has been frosted can be very susceptible to *Gibberella* ear rot if it remains in the field very long, particularly if the frost comes before maturity.

Ear rot diseases can reduce yield and quality of the corn harvest and some of these fungi can produce mycotoxins that are harmful to livestock. To check for ear rots, strip back the husks on at least 100 plants scattered throughout the field. Scout fields separately according to hybrid, tillage and rotation history, and planting date. It is important to be able to recognize the ear rot diseases because their potential impact is very dependent on the particular fungus involved. Once the corn is harvested, it can be more difficult to recognize the symptoms, but if there is a major problem, it will be evident in the grain.

When evaluating an ear rot problem, remember that certain ear rots are a warning sign to suspect toxins, but ear rots do not always lead to toxin problems. When potentially toxigenic ear rots are noticed in the field, grain can be managed to minimize toxin development. If more than 10 percent of ears have a significant amount of mold (25 percent of the ear or more), these fields should be harvested and the corn dried as soon as possible. The combine will remove some of the moldiest kernels.

The best option for moldy grain is to feed it or sell it instead of storing it. However, it should be tested for toxins before feeding. Testing for mycotoxins can be done before putting the grain in storage. The best sampling method is to take a composite sample of at least 10 pounds from a moving grain stream, or to take multiple probes in a grain cart or truck for a composite 10-pound sample. If toxins are present, it is possible that it can be fed to a less sensitive livestock species, such as beef cattle (depending on the specific toxin and its concentration). A veterinarian or extension specialist can help with these decisions. If the grain is sold, there may be a reduced price due to mold damage.

Cleaning the grain removes fine particles that are usually the moldiest and most susceptible to further mold development. **Good storage conditions (proper temperature and moisture content, aeration, insect control, clean bins) and regular inspection are essential in preventing mold and toxin development in any stored corn.**



Gibberella ear rot is caused by the fungus *Gibberella zeae*, also known as *Fusarium graminearum*. It usually begins at the tip of the ear and appears red or pink, or occasionally white. Gibberella sometimes rots the entire ear. Infections occur more commonly in cool, wet weather after silking and through the late summer. Gibberella can produce vomitoxin and zearalenone.

[Enlarge](#) [1]



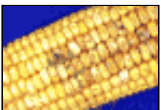
Fusarium ear rot is the most common fungal disease on corn ears. It is caused by several species of *Fusarium*. Symptoms of Fusarium ear rots are a white to pink- or salmon-colored mold, beginning anywhere on the ear or scattered throughout. Often the decay begins with insect-damaged kernels. Usually it does not involve the whole ear. Infected kernels are often tan or brown, or have white streaks. These fungi can produce mycotoxins known as fumonisins.

[Enlarge](#) [2]



***Diplodia* fungus initially appears as a white mold beginning at the base of the ear. The mold and the kernels then turn grayish brown and rot the entire ear. A very distinguishing characteristic is the appearance of raised black bumps (pycnidia) on the moldy husk or kernels. Diplodia ear rot occurs most often in fields under reduced tillage where corn follows corn.**

[Enlarge](#) [3]



***Aspergillus flavus* can produce aflatoxins. It is a olive-green, powdery mold. In Iowa, *Aspergillus* is much more common in hot, dry years. The fungus can be detected in corn because it produces compounds that are fluorescent under black light, but this method does not directly detect the presence of aflatoxins.**

[Enlarge](#) [4]



***Cladosporium* fungi often infect kernels damaged by insects, hail, or frost. *Cladosporium* appears gray to black or very dark green and can have a powdery appearance.**

[Enlarge](#)
[Array]

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[1] http://www.ent.iastate.edu/imagegal/plantpath/corn/gibberella/gibberella_ear_rot.html

[2] <http://www.ent.iastate.edu/imagegal/plantpath/corn/fusarium/0796.105and108.html>

[3] http://www.ent.iastate.edu/imagegal/plantpath/corn/diplodia/diplodia_ear_rot.html

[4] http://www.ent.iastate.edu/imagegal/plantpath/corn/aspergillus/0796_117aspergillus.html

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