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Corn Ear Rots

Alison E. Robertson

Iowa State University, alisonr@iastate.edu

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Corn Ear Rots

Abstract

This year does not appear to be a particularly bad year for ear rots. The season has been cooler than normal, and the weather has been fairly dry since silking. However, some field crop specialists have noticed ear rot problems, in particular, Diplodia ear rot. The incidence of corn ear rot should be determined before harvest for a number of reasons. First, ear rot diseases can reduce yield and quality of the corn harvest. Second, some of the fungi that infect corn ears may produce mycotoxins, which are harmful, and can be fatal, to livestock. Finally, ear rots can continue to be a problem in storage if the grain is not stored under the best possible conditions.

Keywords

Plant Pathology

Disciplines

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INTEGRATED CROP MANAGEMENT



Corn ear rots

This year does not appear to be a particularly bad year for ear rots. The season has been cooler than normal, and the weather has been fairly dry since silking. However, some field crop specialists have noticed ear rot problems, in particular, Diplodia ear rot. The incidence of corn ear rot should be determined before harvest for a number of reasons. First, ear rot diseases can reduce yield and quality of the corn harvest. Second, some of the fungi that infect corn ears may produce mycotoxins, which are harmful, and can be fatal, to livestock. Finally, ear rots can continue to be a problem in storage if the grain is not stored under the best possible conditions.

A note of caution: This year, the warm conditions during September helped dry down the corn crop. However, any replant corn (which was planted late due to the wet conditions at the beginning of the season) is still fairly wet. Growers are advised not to mix the two crops while harvesting since this could result in storage mold problems.

How do I determine the incidence of ear rot in my fields?

Scouting is necessary to determine if your corn crop has an ear rot problem. This can be achieved by stripping back the husks on at least 100 plants scattered throughout each field. If more than 10 percent of the ears have significant mold that is greater than 25 percent of the ear, the corn should be harvested in a timely manner and dried to below 15 percent moisture as quickly as possible to prevent further mold growth and, in some cases, mycotoxin accumulation.

How do I recognize what ear rot disease(s) is present?

It is important to be able to recognize the ear rot diseases. Some of the fungi that cause ear rot diseases can result in toxin problems. However, even those fungi that can produce toxins do not always do so. Therefore, if potentially toxigenic ear rots are noticed in the field, the grain can be managed so as to minimize toxin development. On the following page are photos and information about each of the ear rot diseases that you might expect (see table).

What should I do with moldy grain?



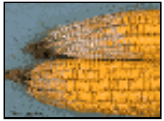


Do not store moldy grain, rather feed it or sell it.

If used for feeding, the grain should be tested for mycotoxins. To collect a sample for testing, take a composite sample of at least 10 pounds from a moving grain stream. Another method

is to take multiple probes in a grain cart or truck for a composite 10-pound sample. Submit the sample to a qualified laboratory for mycotoxin analysis. If the grain tests positive for mycotoxins, you may still be able to feed it to a less sensitive livestock species--for example, beef cattle. However, this depends on the specific toxin and its concentration. Consult a veterinarian or extension specialist to help with such decisions. If the grain is sold, mold damage may reduce the price.

What can I do to reduce the incidence of ear rot in my corn next year?

If your corn crop has ear rot problems this season, there are some management options you can consider to reduce the incidence of these diseases next season. Plant a hybrid with ear rot resistance; avoid planting corn on corn, especially under conservation tillage, and reduce stress on the plants with adequate fertilization and good insect pest management.

Fusarium Ear and Kernel Rot	Diplodia Ear Rot	Gibberella Ear Rot	Cladosporium Ear Rot	Aspergillus Ear and Kernel Rot
 [1]	 [2]	 [3]	 [4]	 [5]
<ul style="list-style-type: none"> • Most common mold • White to pink cottony mold • Infected kernels are scattered around the cob among healthy-looking kernels • Infected kernels have white streaks, in a starburst appearance, on the surface • Insect-damaged kernels are particularly 	<ul style="list-style-type: none"> • Dense, white mold • Starts from the base of the ear. Becomes grayish-brown and spreads over the husks and kernels • Raised black fruiting bodies of the fungus can be seen late in the season 	<ul style="list-style-type: none"> • White to pink mold • Starts at the tip of the ear and grows toward the ear base • Common in cool, wet weather from silking to harvest • Can produce mycotoxins (vomitoxin and zearalenone) 	<ul style="list-style-type: none"> • Gray to black or very dark green mold • Causes black streaks in the kernels • Insect-, hail-, or frost-damaged kernels are prone to infection 	<ul style="list-style-type: none"> • Gray-green, powdery mold • Starts at the tip of the ear or follows insect tracks • Occurs in hot, dry years (unlikely in 2004) • Can produce mycotoxins (aflatoxin)

prone to infection <ul style="list-style-type: none"> • Can produce mycotoxins (fumonisins) 	<ul style="list-style-type: none"> • Favored by wet weather just after silking. More severe when corn is planted after corn. • Does <i>not</i> produce toxins 			
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<http://www.ipm.iastate.edu/ipm/icm//ipm/icm/2004/10-4-2004/earrot.html>

Links:

[1] http://www.ent.iastate.edu/imagegal/plantpath/corn/fusarium/fusarium_insect_inj.html

[2] <http://www.ent.iastate.edu/imagegal/plantpath/corn/diplodia/0796.119and122.html>

[3] <http://www.ent.iastate.edu/imagegal/plantpath/corn/gibberella/1355.44gibberella.html>

[4] http://www.ent.iastate.edu/imagegal/plantpath/corn/cladosporium/0796_124cladosporium.html

[5] <http://www.ent.iastate.edu/imagegal/plantpath/corn/aspergillus/1355.39aspergillus.html>

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