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A Tough Harvest - Frequently Asked Questions, Update

By Charles Hurburgh, Department Agricultural and Biosystems Engineering

Iowa was very fortunate to receive two weeks of warmer than normal weather, and more importantly lower than expected humidity in the air. This has allowed soybean harvest to be nearly completed, and rapid progress to be made on corn harvest, with moistures now in the low 20s and upper teens. The eastern and far northern Corn Belt still have much wetter corn in the field. New problems have arisen, and efforts now turn to conditioning grain for storage.

Reports of field mold, and most recently toxins, are coming in; how serious is this?

The warmer weather which was a huge help in field drydown also kept fungi alive and growing. In most of Iowa, where corn moistures were below 25 percent, the mold is relatively benign *cladisporium*, identified by black dots on the kernel surface. Some will be knocked off in harvest and handling. These kernels will grade Damage, but generally do not produce toxins.

The white or pink molds, *Gibberella* and *Fusarium*, can produce toxins – vomitoxin, zearalenone, fumonisin. These fungi have been reported more in eastern Corn Belt, and toxins above advisory levels have been found. Two October ICM articles provide additional information on molds, toxins and feeding advice – [How Delayed Harvest Might Affect Ear Rots and Mycotoxin Contamination](#) and [2009 Corn Quality Issues – Field Molds](#).

Toxins concentrate at 3 to 1 ratio in the distillers grains for ethanol plants. Most plants and many elevators are screening. There are two options for screening when using strip test kits; slow down receiving to 10-15 minutes per truck so that each load can be tested, or periodically test a composite of the grain received, preferably by bin assignment, during that period. The second is preferred for time reasons, and will give a reasonable assessment of the average quality received. If problems show up, more intensive sampling of visually suspect loads can be done. Random spot checks of individual loads run the risk of either over or understating the problem. Likewise testing of only visually moldy loads can be misleading; toxin is possible without significant visual signs. The composite approach is more able to create the over five-pound sample that must be ground in preparation for using any mycotoxin test method.

Be sure to contact your crop insurance agent if you have field mold, or were told by a buyer that you do; toxins and quality are covered by crop insurance but the adjustment must be done in the field. Adjustment of check strips should be done as close in time to harvest of the field as possible. Likewise, if pre-harvest field samples are taken, harvest immediately to prevent changes after the adjustment.

Toxins are not often a storage problem but with very high moisture and heating, they can be formed. End users should test moldy high moisture corn and such corn after it has been dried, for the full range of toxins, especially if the corn has heated in storage.

I feed my own corn; what steps should I take?

- Scout your fields.
- Try not to feed moldy corn.
- Do not mix moldy and clean corn in the same bin.
- Dry and sell the moldy corn quickly.
- Take a representative sample of each of your bins to a lab, or to your veterinarian to send to the Iowa State Vet Diagnostic Lab.
- Read the guidelines carefully (see above links); they give recommendations in parts per million (ppm) for individual ingredients and a maximum inclusion rate of the ingredient in the feed. For example, 5 ppm maximum for corn with a 20 percent inclusion rate of the suspect corn for swine.
- Be careful of additive effects if you have two sources of toxin, such as corn and distillers grains, to not exceed the total ration limits.
- Work with your veterinarian and nutritionist in feeding this corn.

I have very wet corn in storage; now what?

- If the corn is below 20 percent, natural air/low temperature drying can handle it. Low volume aeration only will cool the grain but plan to move it during the winter or dry later. Corn wetter than 20 percent at this time will have to be dried further; it should not be in piles or other places that are hard to aerate and complicated to pick up.
- Maintain continuous airflow, and steadily move this corn to heated air drying regardless of the logistics required to do so.
- Check very often so that grain which is noticeably heating and crusting can be moved/turned.
- Expect to lose some of this corn to mold through both physical shrink and damaged kernels if you cannot dry it quickly. Wet corn in piles and bunkers is especially high risk.
- The 2009 crop corn is low in test weight, which means that its storage properties are poor. Choose which corn to move first according to test weight, lowest first.

What are the most important things to do for medium moisture and dry grains in storage?

Remove the center core of bins and re-level. Be able to monitor temperature and progressively drop the temperature as the outside air temperatures fall. All grain should get to 35F or lower; it is ok to freeze corn as long the grain is clean so that chunks do not form. Cold grain needs headspace ventilation fans to control condensation in the spring.

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