



News & Views

A Monthly Publication Dedicated to the Feed, Seed, Grain and Farm Supply Industries of Wisconsin

WASA Website ■

We received a couple complaints that members were not able to view the WASA website as it was designed. Upon investigation, we found the website would display properly in Microsoft Internet Explorer (IE) 7 and earlier versions, Mozilla Firefox (all versions), Apple Safari, and Google Chrome. The site however would not load properly as designed in the new Microsoft IE 8.

We have learned the issue that caused this display problem and have rectified it, so that all browsers interact correctly. If you have any display or readability issues with any of our communications, please let us know. We'll do our best to fix it.

Somebody Asked ■

Q.: I am located in one of the hail-affected areas of the state. I have been noticing corn fields in my area with a distinct black color. Is this the mold that causes aflatoxin? I'm concerned because these were distressed and damaged fields and I have heard aflatoxin typically hits distressed fields. Have you heard of any aflatoxin showing up in this year's corn crop?

A.: We contacted UW Extension to ask if they had heard or seen of any mycotoxin issues around the state. While not specifically aware of the presence of aflatoxin, researchers are aware of a fungal disease, anthracnose, in the southwestern portion of the state.

Anthracnose is a leaf spot or blight that may develop into a stalk rot. Symptoms are large (~1/2" long) oval/elliptical brown lesions. The pathogen that causes anthracnose survives on corn residue.

Potassium deficiency and continuous corn systems elevate the risk for this disease. Residue management and selecting resistant hybrids are the best options for control. Ear and grain molds can severely reduce grain quality.

Even though we have not seen direct evidence of aflatoxin in the state, it would be instructive to have a refresher regarding mycotoxins in general, just so you are aware of the issues and concerns. (We are aware of aflatoxin issues that occurred in northwestern portion of the state during the '07 harvest, which led to the rejection of loads at various ethanol plants at that time. In addition, you should be aware the ethanol manufacturing process does not destroy the mycotoxin, but rather concentrates it in the DDG.) We'll cover the causes of the fungus, how to test for it, and how to minimize it in your bin.

The most common fungi that produce mycotoxins and attack grain are *Aspergillus*, *Fusarium*, and *Penicillium*. However, not all ear rot diseases produce mycotoxins (e.g., Diplodia ear rot). Crop stress from drought; ear injury (e.g., hail); or cool, wet conditions following silking (R2) favor ear molds.

If infections occur in the field, look for the characteristic cottony growth as evidence of fungal growth. *Aspergillus* or *Penicillium* produce powdery yellow-green or blue-green mold, respectively, between the kernels, usually at the ear tip. *Fusarium* produces a whitish-pink to lavender mold on kernels and/or silks. *Gibberella* generally appears as a reddish or pinkish mold growing from the tip down the ear.

Diplodia ear rot appears as a white or grayish mold between the kernels and is concentrated at the base of the ear. The husks appear bleached and may stick to the ear. Stored grain with a moisture content of greater than 13% may be subject to mycotoxin problems. Stored grain with *Penicillium* ear molds may have a blue discoloration of the embryo ("blue-eye" mold) or a light cover of a yellow-green mold.

Example of *Aspergillus ear rot*



Grain is typically pre-screened for aflatoxin using a black light (UV) test (*Aspergillus*-infected grain generally glows bright green-yellow). Although this test is quick and easy, it is not conclusive (because factors other than *Aspergillus* can cause grain to fluoresce). Obviously, a UV light test does not give concentrations. Many facilities that are concerned with aflatoxin will simply reject any load that has a “glower.” There are 10-minute “quick tests” that are available for grain buyers to use; however, depending on your market this may not be economic or practicable. A definitive test in the laboratory is needed to confirm mycotoxin concentrations.

Why is this important? Fungi that infect cereals and grains often produce harmful metabolites that can reduce grain value. These metabolites have serious effects if tainted grain is allowed to enter the food chain. Recently, toxic concentrations of aflatoxin in corn used in pet food led to serious illness, death, and pet food recalls.

Because of these potential serious consequences, FDA has developed recommended maximum levels in corn and corn products of aflatoxin in human or animal products.

The recommended maximum levels of the toxin intended for *animal food*, is as follows:

- five p.p.m. for horses and rabbits;
- 20 p.p.m. for swine and catfish;
- 30 p.p.m. for lactating dairy cattle, laying hens and breeding ruminants, poultry and mink;
- 60 p.p.m. for ruminants older than three months being raised for slaughter;
- 100 p.p.m. for poultry being raised for slaughter;

and

- 10 p.p.m. for all other animals including pet animals

The maximums recommended for *human food*, is as follows:

- two parts per million (p.p.m.) in de-germed dry milled corn products with a 5% or lower fat content, such as corn meal;
 - four p.p.m. for whole or partially de-germed dry milled corn products with a 2.25% or lower fat content; and
 - three p.p.m. in cleaned corn intended for popcorn.
-

What can you do to either minimize the development of the mycotoxin in grain you handle or store? Here are a few points to consider.

- Do not hold high moisture grain in wagons or trucks longer than 6 hours. Place high moisture corn being held for drying in a holding bin using forced air to keep it as cool as possible.
- Drying temperature and drying time may have an effect on the development of aflatoxin in stored grain. Slow drying with low heat over long periods could promote aflatoxin development

Proper Drying

- *Layer-in-Bin Drying* - Drying corn in deep layers can produce conditions highly favorable for mold development. The drying temperature for this method is increased only 10 to 20 degrees F above outside conditions. The relative humidity in the top layer of grain remains very high for an extended period of time. These factors are favorable for aflatoxin production.
- *Batch-in-Bin Drying* - A lot of grain is batch dried in bins. Wet grain is usually placed about 3 to 4 feet deep in a drying bin and hot air (about 140 degrees F) is forced through the grain, drying the batch normally in less than 24 hours. The grain is then cooled for storage in the same bin or moved to a storage bin and cooled by aeration fans.

This method can be used when storage is available to unload the dryer before putting

additional wet grain into the dryer. If the heater is adequate to raise air temperature sufficiently, this method can increase drying rate by a factor of three over the layer-in-bin drying method. Chances of aflatoxin being produced with this system are decreased since higher temperature and faster drying are used. To prevent further fungi and mold growth in storage, dry to an average moisture content of 12 percent.

- *Column Dryers* - Aflatoxin production in column dryers operated at high temperatures (180-200 degrees F) and short drying time (one-two hours) is very unlikely. This is also true for batch or continuous flow column type dryers.

Maintain Proper Storage Conditions

Keep moisture in stored grain below 12-13 percent to stop the development of aflatoxin.

Scalping grain before storage will help remove trash, cracks and shriveled kernels, which are usually high in aflatoxin content. Consider using a grain cleaner at the bin to remove trash before placing the grain into storage.

Storage

Aerate grain in storage when it is at least 10 degrees F warmer than outside air temperature and humidity is below 65 percent. An air flow rate of 1/10 cubic feet per bushel per minute is adequate for cooling grain.

Drying fans can be used to cool grain in a few hours when outside air conditions are favorable. Air should be pulled from the top of the bin and exhausted through the bottom to prevent moisture condensation at the top of the grain during aeration. Never add heat during aeration. Operation of aeration fans during summer is not recommended unless hot spots or a musty odor develop. If this occurs, operate the fan during the coolest part of the day for about 10 minutes until the problem is resolved.

Grain held in storage should be inspected and probed every three to four weeks. Check for high temperatures, mold growth or sprouting at the top of the grain.

Sources: UW-Madison Extension, University of Georgia Cooperative Extension Service, University of Missouri Extension, and the FDA

Medicated Feed Mill Licenses

A few members have contacted us with questions regarding their FDA drug establishment registration (Form 2656) for their feed mill operations. This annual re-registration is required for feed mills holding an approved Medicated Feed Mill License. As of June 1, 2009, FDA has required electronic submissions of Form 2656, which was provided for within a provision of the FDA Amendments Act of 2007.

Based on feedback that we and others have been receiving, the new electronic submission process is proving to be frustrating and complicated. The National Grain and Feed Association (NGFA) have contacted FDA/CVM asking for additional guidance on how feed mills can comply with this registration obligation. They will share any information they receive with us and we will get it into your hands ASAP!

Source:NGFA

WASA Directory Update

The following updates should be made to your WASA Directory.

Changes:

Nutriad Inc.

formerly BFI Innovations, Inc.

420 C Airport Rd.

Elgin, IL: 60123

Phone: (847) 214-4860

Fax: (847) 214-4880

Looking Down the Road

Jan. 28-29

WASA Convention and Trade

Show, held in conjunction with the Corn/Soy Expo

Kalahari Resort, Wisconsin Dells