

## **Harvest Nears Completion; Now Must Consider Health of Livestock**

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This fall has had all the ingredients for a mess of molds and mycotoxins. A late harvest, wet weather and high moisture corn have all contributed to the recent reports of moldy corn across the Midwest.

The latest results from the Iowa State University Vet analysis suggest that this year's crop may be the worst since 1996 in terms of mycotoxins. Early results show samples positive for Vomitoxin (DON) (range >.5 to >15 ppm), Fumonisin (range >1 to 4 ppm), and Zearalenone (range >.5 to 1 ppm). One sample contained T-2 at a level of 1,140.6 ppb.

Wet conditions are ideal for mold growth. The grains at harvest should not have more than 13 to 14 percent moisture. If the grains contain more than this recommended moisture, it is highly suggested they be dried and to use mold inhibitors (organic acids) at appropriate concentrations. These mold inhibitors reduce the further growth of molds and the subsequent mycotoxin production.

High moisture corn should be analyzed for mycotoxins before storage or feeding and should be stored in separate, temporary structures such as bags to avoid possible contamination of permanent storage structures.

Special care should be taken to make sure that silos/bunks are packed well. The use of silage inoculants can be valuable. Care should also be taken to store straw and hay properly as they can also be a source of mycotoxins.

Mycotoxins are harmful toxins produced by molds that are found in the soil and can grow on vegetable matter including grain, forages and silages. Mycotoxins can be formed in the field preharvest and may continue to be formed under suboptimal storage conditions postharvest. Aflatoxins and *Fusarium* mycotoxins are often associated with moldy corn. With *Fusarium* mycotoxins, it is far more complex because we have well in excess of 100 different toxins and the analysis of the compound to see what is in the feed is very complicated.

Pigs are the most sensitive species. Zearalenone specifically influences reproduction. It is an estrogenic compound so it has a hormonal-like effect in pigs which interferes with reproduction causing infertility, abortions and other types of adverse symptoms. The major behavioral effects in pigs, and in horses too, are related to reduced feed intake and the primary culprit here is DON. By reducing feed intake, the animals actually have a natural protective behavior and protect themselves from the adverse affects of the toxins on metabolism. If they don't eat it, they can't get the harmful effects. The harmful effects are seen if there is anything that induces feed intake, for instance gestating and lactating sows. Sows will actually waste away as they mobilize their own body protein to maintain gestation and lactation.

Ruminant animals are the most resistant and this is because of rumen microorganisms which have enzymes that can degrade the toxins before they ever enter the blood stream and cause harmful effects. When we have high-producing dairy cows, we can sometimes see reduced milk production and impaired reproduction in cows. In our studies with dairy, one of the major factors we did see was suppression of the immune system. Immunity suppression means increased frequency of diseases and various types. We often see disease challenges not responding to medication the way you expect. If you have any type of vaccination program, it may fail because the animals can't respond.

Once mycotoxins have made their way into the feed, there are still a few options available to the producer. They either should not feed the contaminated feed or should use an effective mycotoxin adsorbent. There are two types of adsorbents: silica-based polymers and carbon-based organic polymers. Silica-type materials are readily available and many have shown to be effective against aflatoxins, but ineffective against other types. An organic glucomannan polymer extracted from the cell wall of the yeast cell, is a natural fiber source and can often be used at practical levels of inclusion for all species of mycotoxins, including DON.

Mycotoxins are a leading area of study at Alltech. Through 29 years of research-driven product development, Alltech has created a range of natural solutions for the feed and food industries. For more information, please visit the Web sites at [www.alltech.com](http://www.alltech.com) or [www.knowmycotoxins.com](http://www.knowmycotoxins.com).