



Swine Tech-Line



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Mycotoxins in Corn

Due to inconsistent growing conditions and unfavorable harvest weather, we have seen an increase in the number of samples of corn containing mycotoxins, especially DON, or vomitoxin. Mycotoxins are toxins produced by molds in feeds or feed ingredients. The chart below lists six mycotoxins which are of major concern. It should be noted that the warning levels give a good indication of the levels of concern for individual mycotoxins. When more than one mycotoxin is present, they may interact and enhance each other. This means that the level of a particular mycotoxin could be below the warning level, but the major concerns may be observed because of the interactions with other mycotoxins. A mycotoxin screen of the grain or complete feed will help evaluate the situation. It is also important to note that the level of mold is not a good indicator of the level of mycotoxins. Mold counts in the test results could be low but the corn may still have high mycotoxin levels.

Table 1. Mycotoxins in common feed ingredients^a

Mycotoxin	Main producing molds	Major concerns	Main crops	Warning levels ^{b,c}
Deoxynivalenol (DON, vomitoxin)	<i>Fusarium graminearum</i> ; <i>F. culmorum</i>	↓ feed intake; feed refusal; vomiting, ↓ gain	corn; wheat; barley; rye; oats	1.0 ppm
Zearalanone	<i>F. graminearum</i> ; <i>F. culmorum</i> ; <i>F. tricinctum</i>	Estrogen-like effects; ↓ reproduction; infertility	Corn; wheat; barley; rye	500 ppb
Fumonisin	<i>Fumonisin moniliforme</i> ; <i>F. proliferatum</i>	↓ gain & feed intake; liver & lung problems; hemorrhages	Corn	5.0 ppm
Aflatoxin	<i>Aspergillus flavus</i> ; <i>A. parasiticus</i> ; <i>A. nomius</i>	↓ gain & feed intake; liver damage; ↓ immunity	Corn; peanuts; cottonseed	0.02 ppm (20 ppb)
T-2	<i>F. sporotrichoides</i> ; <i>F. tricinctum</i> ; <i>F. poae</i>	↓ gain & feed intake; ↓ sow fertility	Wheat; barley	0.5 ppm
Ochratoxin	<i>A. ochraceus</i> ; <i>Penicillium verrucosum</i>	↓ gain & feed intake; ↑ water intake; kidney problems	Barley; oilseeds	0.20 ppm

^aAdapted from van Heugten, 2001.

^bLevels are guidelines, the min level where mycotoxins will affect swine performance depends on many factors (ex. age, reproductive function, etc.).

^cppm = parts per million; ppb = parts per billion

Hubbard Recommendations:

- If you suspect the presence of mycotoxins, work with your Hubbard Feed representative to obtain a sample and send it to a lab for analysis.
- Corn that has high levels of mycotoxins should be blended with clean corn or an alternative feed ingredient.
- The use of products such as Integral[®] or KalSill can help reduce problems in swine from mycotoxins present in the feed.
- For more information on molds and mycotoxins, go to www.knowmycotoxins.com

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Low Test Weight Corn

The concentration of protein, fiber and minerals usually increases and concentrations of starch and fat decrease as test weight or corn declines. Research in the past at the University of Minnesota, Michigan State University, and a cooperative in South Dakota evaluated late nursery and grow-finish performance of pigs fed low test weight corn. Other than decreased performance with one corn that contained mycotoxins, low test weight corn did not show consistently negative effects on growth or feed efficiency. The researchers concluded that corn with test weight as low as 40 lb/bu can support pig performance similar to corn with normal test weights. More recent research feeding low test weight corn to today's leaner, faster growing pigs taken to heavier weights is not available.

Producers need to monitor pig performance. Fat may need to be added to diets with low test weight corn to maintain weight gain.

All volumetric mills and feed drops should be recalibrated with new crop corn regardless of test weight, but it is especially important with low test weight corn.

Also, bins should be cleaned and inspected more frequently with the cooler, wetter weather and the use of new crop corn with higher moisture content.

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