



Managing Mycotoxins Differently

Hot humid weather throughout the growing season can make the summer a difficult one for grain producers, and make the fall a difficult one for hog producers. As humid conditions are one of the factors that can lead to grain contaminated with fusarium mould. Deoxynivalenol (a.k.a. DON, vomitoxin) is a mycotoxin that can be produced when fusarium moulds contaminate cereal grains (including wheat, barley, and corn). Pigs are more sensitive to DON contamination in their feed than other farm animals. Growing beef cattle, sheep, and poultry have an Agriculture Canada Guideline of 5 ppm, while the guideline for pigs is 1 ppm (1 mg/kg).

Often when feed is contaminated with one type of mycotoxin another types will also be present. For example, feed contaminated with DON can also be contaminated with zearalenone, another mycotoxin caused by fusarium. As with DON, zearalenone affects pigs more than other farm animals. Producers should keep zearalenone concentrations under 0.5 ppm for all swine and avoid using zearalenone contaminated grains altogether in diets for breeding and replacement swine.

Quite often the *solution is dilution* when it comes to feeding fusarium contaminated grain. What if we could select corn varieties which exhibited greater resistance to fusarium? Research funded through the Canadian Swine Research and Development Cluster, lead by Gilles Tremblay (CÉROM (Centre de recherche sur les grains inc.) sought to identify, under natural disease pressure, whether there were any differences between hybrids in grain content levels of four different mycotoxins (Deoxynivalenol (DON), fumonisin (FUM), zearalenone (ZEA) and T-2 toxin (T2)) in different environments, in addition to examining the effectiveness of fungicide application.

In collaboration with Réseau des grandes cultures du Québec (RGCQ), corn trial managers collected more than 2,100 representative samples of grain corn at harvest testing for the four toxins (DON, FUM, ZEA, T2). In addition to examining the effectiveness of a fungicide application on mycotoxin grain content among 24 different hybrids, and 576 samples (over three years) for the same toxins.

Benefit to the Producer

- Results indicate that grain corn is usually under critical content levels for DON, FUM, ZEA and T2 toxin.
- For the FUM, ZEA and T2 toxins, *98 to 100% of the hybrids had toxin content under the critical levels.*
- For DON toxin, *84%* of the hybrids had ≤ 1 ppm in 2700-2900 and 2500-2700 CHU areas but only *58%* in the 2300-2500 CHU area. Still for DON toxin, *96-98%* of the hybrids had ≤ 2 ppm in 2700-2900 and 2500-2700 CHU areas and *86%* in the 2300-2500 CHU areas.
- Fungicide (Headline®) application was effective in reducing T2 toxin levels, had not impact on DON, FUM or ZEA

Of all the toxins analyzed, DON was the most prevalent and most frequently exceeded critical levels associated with, feeding corn to pigs. The results will assist farmers selecting hybrids with better tolerance to mycotoxins, helping to minimize the negative impacts of feeding mycotoxin contaminated grain.

DON in Swine Diets

<http://www.prairieswine.com/don-in-swine-diets/>

The Efficacy of Nine Different Feed Additives on Mitigating the Effects of Deoxynivalenol (DON)

<http://www.prairieswine.com/the-efficacy-of-nine-different-feed-additives-on-mitigating-the-effects-of-deoxynivalenol-don-when-consumed-by-growing-pigs/>

Development of Fusarium Resistant Corn Inbreds for Pork Production

<http://www.prairieswine.com/development-of-fusarium-resistant-corn-inbreds-for-pork-production/>

