



PORK BRIEFS

THE LATEST INFORMATION ON SWINE NUTRITION



Dilution is the Solution

By Ken Palen



Well, like it or not this year we are dealing with toxins in the corn in Ontario again. Reports are Michigan has the same problem and maybe worse off than us. Typically vomitoxin and zearalenone are the two most prevalent toxins in Ontario corn this year so far, but there are bound to be some cocktail mixes of toxins in some corn samples. That combination can make the impact of small amounts of vomitoxin more problematic. Therefore, doing a feeding test and lab

analysis both would be advised. A vomitoxin level of 2-3 ppm could throw the pigs right off feed if mixed with a cocktail of other toxins on one farm, where another farm may have very moderate effects with these levels. Agriculture and Agri Food Canada guidelines for vomitoxin levels in pig feeds are 1 ppm. Vomitoxin will throw pigs off feed and zearalenone can cause swollen vulvas, breeding problems, and even abortions if high enough. Again, typically vomitoxin has been our first concern. All toxins may also reduce the effectiveness of vaccines and cause an overall reduction in the pig's immune system resulting in the pigs being more prone to disease. Diluting the infected toxic corn with other feedstuffs like wheat, DDGS, bakery and others are a good option. Let's look at what may work.

Wheat (Soft Red or White or Hard)

The easiest to handle of the feedstuffs discussed is wheat. Flowability in bins is not a problem. Ontario had a big crop this year so lots of wheat should be available, especially soft red wheat. This year's corn crop is grinding hard so adding up to 500kg of wheat per tonne can speed up grinding. Wheat must not be ground too fine, courser is better than finer. Clean wheat is a great option this year.

DDGS

Distillers dried grains with solubles (DDGS) is derived from the process of turning corn into ethanol therefore is NOT A GOOD OPTION this year. If the corn delivered to the ethanol plant is 1 ppm vomitoxin, the resulting DDGS will typically have three times more or 3 ppm of vomitoxin. It will probably be hard to secure low vomitoxin DDGS in Ontario or Michigan this year, but testing is the key with the suppliers.

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DDGS is a harder to handle material as well so investigate your storage with the supplier to ensure it will flow out of the bin you are using.

Bakery

Bakery is a cereal by product and may be partially derived from corn (ie Corn Flakes). It is important to test the material for toxins to establish a base line for the addition level to use in your rations. Test also for electrolytes (salt) and mineral levels as these levels can also impact how much bakery may be added to the ration or diet changes that may be made to accommodate this feedstuff. Storage is also key to keep it dry. Due to the sugar typically in bakery, molds can grow very quickly if moisture is available. Flowability out of bins could be an issue as well. Bakery is an option if these considerations are dealt with.

DILUTION IS THE SOLUTION

WHEAT

Corn Vomitoxin Level	2.00 ppm		4.00 ppm		6.00 ppm	
PREMIX	29	29	29	29	29	29
SBM 48%	150	145	150	145	150	145
Soft Wheat	250	500	250	500	250	500
Dry Corn	571	326	571	326	571	326
Totals (kg)	1000	1000	1000	1000	1000	1000
Approximate Vomitoxin Level in Diet	1.3 ppm	0.9 ppm	2.4 ppm	1.6 ppm	3.6 ppm	2.2 ppm

NOTES

- 1) The above diets use an approximate vomitoxin level of 0.5 ppm in Soft Wheat.
- 2) The above diets are not balanced for Energy, they are just examples for dilution purposes.

DDGS

Corn Vomitoxin Level	2.00 ppm		4.00 ppm		6.00 ppm	
PREMIX	27	24	27	24	27	24
SBM 48%	130	120	130	120	130	120
DDGS	100	200	100	200	100	200
Dry Corn	743	656	743	656	743	656
Totals (kg)	1000	1000	1000	1000	1000	1000
Approximate Vomitoxin Level in Diet	2.4 ppm	3.1 ppm	3.9 ppm	4.4 ppm	5.4 ppm	5.7 ppm

NOTES

- 1) The above diets use an approximate vomitoxin level of 9.00 ppm in DDGS.
- 2) Based on approximately 3.00 ppm of vomitoxin corn being delivered to the Ethanol Plant, test DDGS to verify level.
- 3) The above diets are not balanced for Energy, they are just examples for dilution purposes.

BAKERY

Corn Vomitoxin Level	2.00 ppm		4.00 ppm		6.00 ppm	
PREMIX	29	29	29	29	29	29
SBM 48%	155	155	155	155	155	155
Bakery	100	150	100	150	100	150
Dry Corn	716	666	716	666	716	666
Totals (kg)	1000	1000	1000	1000	1000	1000
Approximate Vomitoxin Level in Diet	1.5 ppm	1.4 ppm	2.9 ppm	2.7 ppm	4.4 ppm	4.1 ppm

NOTES

- 1) The above diets use an approximate vomitoxin level of 0.5 ppm in Bakery.
- 2) The above diets are not balanced for Energy, they are just examples for dilution purposes.

The example diets shown in the charts above clearly show that adding clean wheat (Soft or Hard) gives you the most flexibility for diluting out different levels of vomitoxin (toxins) with the higher levels able to be added (up to 500kg per tonne). DDGS this year may be a problem if corn delivered to the ethanol plants are high in vomitoxin. The example shows corn delivered at 3 ppm resulting in 9 ppm vomitoxin DDGS. Communicating with the suppliers and testing is the key this year on using DDGS. Bakery addition is typically kept at 100 to 150kg per tonne due to salt levels and flowability of finished rations. Again testing for toxins, salt, and minerals is key to establishing the level that can be added to rations and any nutrient level adjustments required to feed at higher levels in the ration. Kenpal has Vitamix, a Mycotoxin binder available which can be added directly into the premix or supplement for use on the farm when moderate impacts of mycotoxins occur. Talk to your Kenpal Rep about this option.

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