PORK BRIEFS

THE LATEST INFORMATION ON SWINE NUTRITION

Considerations of Feeding Wheat or Barley
By Ken Palen

Every year pork producers look at wheat and/or barley values to see if it is advantageous to harvest and feed it or harvest and sell it. Pork producers not growing these grains also look at the value of low test weight or off spec material to see if any deals exist to incorporate some wheat or barley into the ration to help reduce costs.

Typically wheat is used for human consumption so it generally is too expensive to feed to swine in Ontario when corn is readily available. Around the world though wheat and barley are the main ingredients used to raise pigs. They complement each other in a ration with wheat being higher energy and barley adding a bit of fibre. Most wheat grown in Ontario is either soft white or soft red wheat although hard red wheat seems to be increasing in acres. Table 1 shows the Typical Nutrient Composition, different wheats and barley compared to corn.

Table 1.

Typical Nutrient Composition of Wheat and Barley				
Nutrient	Dry Corn	Soft Wheat (Red or White)	Hard Red Wheat	Barley
Protein (%)	8.24	10.92	14.46	11.33
Lysine (%)	0.25	0.35	0.39	0.40
Fat (%)	3.48	1.36	1.82	2.10
Fibre (%)	1.98	2.30	2.57	3.90
Calcium (%)	0.02	0.03	0.06	0.06
Phosphorus (%)	0.26	0.30	0.39	0.35
Net Energy, Kcal/kg	2672	2595	2472	2327

Based on National Research Council - Nutrient Requirements of Swine, 2012 and Nutrient Requirements of Swine, Tenth Revised Edition, 1998

Volume 9, Issue 4
August 2016

For producers looking for a quick calculation on the values of wheat and barley the typical analysis would put wheat at a value range of 95-105% the value of the corn and barley at 85-90% of the value of corn. There can be a large variability in nutrient values among different varieties and different fields. Good quality is important when evaluating value of grains.

Low Test-Weight Wheat

Low test-weight wheat often reaches swine diets as a grain alternative containing 20 to 50 percent more fibre than normal wheat. In turn, the Net Energy content of light bushel weight wheat may be less than regular wheat. In some studies University researchers report no effect on daily gain but some increase in feed/gain for grow-finish pigs fed 51 to 45 lb test-weight wheat vs. normal wheat at 60 lb. per bushel. Results are quite variable with feeding lower test weight wheat.

Mycotoxins

Similar to corn, Mycotoxins contamination can exist. Wheat and barley should be tested for vomitoxin and zearalenone if field contamination with fusarium mold is suspected. Barley has also been shown to contain T-2 toxin (from fusarium mold) and in certain years has been infected with ergot (looks like black mouse droppings).

Processing

Wheat ground too fine (less than 600 microns) can affect its feeding value especially if using soft wheat. In addition to flowability problems, the wheat is pasty in the pig's mouth so reduces palatability. I have seen the pigs make gum balls out of the feed and spit it back out. Ground too course, too many whole kernels can reduce digestibility. Roller mills or hammer mills can be used to process wheat. Barley is best ground through a hammer mill to reduce the particle size of the barley hull. Roller mills can be used if a hammer mill is not available.

Ration Balancing

The amount of wheat that can be added to swine rations continues to be an area of debate, with some producers feeding even the soft white or red wheat as the only grain source after grinding quite coarsely (800 microns or more). Pigs fed wheat can show sticky manure and look dirtier. Pens can also be harder to wash. Table 2 shows a range of a more conservative approach to feeding different wheat and barley.

Table 2.

Guidelines for Soft Wheat, Hard Wheat and Barley in Swine Diets			
	Soft Wheat (Red or White)	**Hard Wheat (Red)**	**Barley**
Dry Sow Diets	50%	50%	100%
Lactation Sow Diets	30%	40%	30%
Pig Starter Diets	25%	40%	20%
Grower/Developer Diets	50%	100%	100%
Developer/Finisher Diets	50%	100%	100%

Source: Adapted from various industry charts

With any ration change, introduce the new grain slowly and check with your nutritionist to properly balance the ration. Consideration of feeding new wheat or barley may be an option to try this year. Enjoy the summer with some family time.

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John Van Dorp
Woodstock, ON

May 10, 2012

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Published By:

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