



Results of the 6-row and 2-row Barley Comparison

I would like to present the results of the Ted VanLunen and I finished at the AVC Research Barn looking at feeding pigs using some common barley choices. We used identical diets but included 2-row barley and compared it to 6-row barley. It has been suggested that there is more fibre in the 6-row barley, which may affect the performance of the pigs. When we had a request from the industry to evaluate the feeding value of the two varieties, we were fortunate to access the barleys with similar nutritional value. We had 2-row barley with a protein content of 11.9% as well as 6-row at 12.0%. The rations were as follows:

Ingredient	Grower	Finisher
Barley 2 row or 6 row	760 kg	800 kg
Supplement	240 kg	200 kg
%Protein	18%	16.9%

125 pigs got the 2-row barley and 125 received the 6-row barley, and pigs were all in the slatted portion of our AVC Inc barn on the Union Road.

We were able to compare the pig's performance as well as the carcass and pork quality. Since fibre impacts on the flow and type of manure, we asked Dr. John MacLeod and Dr. Allan Campbell of Agriculture and Agri-Food Canada to share with us some of their manure data. The study results are as follows:

Pig Performance:

Pigs 22 kg to 109 kg	2-row Barley	6-row Barley
Growth rate g/day	901.9	882.1
Days	96.8	<u>99.9</u>
Light pigs (%<80kg)	13.6	11.8
Mortality Rate%	4.8	2.4
Feed conversion	3.01	3.04

There appeared to be a slight difference in growth rate. We also checked for the presence of mycotoxins (mould contamination) in the feed and did find a low level. The 2-row barley contained 0.2 ppm of vomitoxin and the 6-row had 1.0 ppm. It is difficult to predict the effect of mycotoxins on pigs, but vomitoxin in feed can cause feed refusal or a reduction feed intake. It is possible the difference in growth rate is due to the mycotoxin difference. The mycotoxin analysis was chosen by Dr. Richard Martin of Agriculture Agri-Food Canada as 6-row barley can be more susceptible to fusarium infection, which can produce DON (vomitoxin) in the grain.

It is worth noting we fed the Duroc, York and Landrace sired pigs at the same time, in the bedded portion of the barn using a commercial feed (See June newsletter). Those pigs grew faster, up to 1,004 g/day (84.6 days) for the Duroc sired ones.

Carcass Performance:

Carcass 80 to 95 kg dressed wt	2-row Barley	6-row Barley
Index	111.08	111.18
Lean yield	61.00	61.09
Back fat	17.70	17.67
Loin eye	60.04	61.70

There appeared to be no differences in carcass value between the feeds.

Meat Quality:

Pork loins cut at 2nd last rib	2-row Barley	6-row Barley
Reflectance	52.8	52.9
pH	5.32	5.29
marbling	1.97	2.15
Muscle firmness	2.51	2.46
Fat firmness	3.65	3.15

There appeared to be no differences between barley choices and the quality of the pork that was produced. Perhaps the major point to note is that the fat was firmer than in other studies, confirming that barley fed pigs have a harder fat content that some markets prefer.

Manure Quality:

	2-row Barley		6-row Barley	
	% of Total	% of Nitrogen	% of Total	% of Nitrogen
Solid	60	0.60	66	0.65
Liquid	40	0.81	34	0.92
Consistency	coarse		coarse	
Flow Rate 1 mid fill (Jan)	760 l/minute		694 l/minute	
Flow Rate 2 end (March)	586 l/minute		396 l/minute	

It doesn't appear that there is a great deal of difference in the consistency of the manure or its nitrogen value. The nutrient results are from only one sample only and repeating the study may be more conclusive.

The manure flow rate of the 6-row barley appeared to be slower indicating that emptying the manure pits might take longer with the 6-row barley, particularly at the end of the fill. We measured how much manure left the pits under the pigs, in a 5-minute period, once the plugs were pulled. Because we worked with a limited number of pits, we cannot be statistically certain of this finding, but there certainly was a trend for the 6-row manure to flow more slowly.