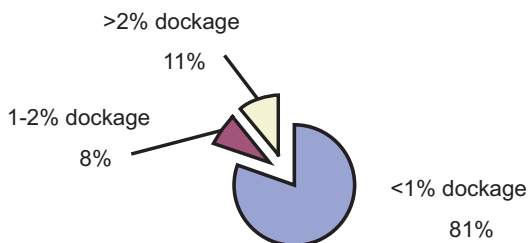




WESTERN CANADIAN PEAS – COULD THEY GET ANY CLEANER?

Canadian pulse producers have been growing dry peas for over 25 years. During this time, experience and technological improvements have resulted in the development of a new, high-quality ingredient for the North American feed industry. One impressive characteristic of feed peas is that the majority of the crop is harvested with negligible foreign material levels – a fact supported by the Canadian Grain Commission Harvest Survey data collected for the 2005 crop year (Graph 1). While nearly 80% of the samples submitted by producers had less than 1% foreign material (Figure 1), it is even more amazing that the average foreign material content for all samples was 0.76%! With 2005 production exceeding 3MMT, producers can clearly claim to have an abundant supply of clean Canadian peas for the domestic feed market.

Figure 1. 2005 Canadian Grain Commission Harvest Survey of Dockage Levels in Peas



USER – DEFINED DOCKAGE LEVELS

Effective August 1, 2002, the Western Grain Standards Committee removed total foreign material (TFM) as a grading factor for Canada Feed Peas. Prior to these changes, the TFM level maximum of feed peas was 6.0%; however, this change now **allows purchasers requiring low TFM peas to specify the level directly in their contract with the seller.**¹

WHITE-FLOWERED FABA BEANS PARTNER WITH FEED PEAS AS SBM ALTERNATIVES FOR HOGS

White-flowered faba bean production in Alberta is estimated at 5,000 acres. Due to the excellent nitrogen fixation, good disease-resistance and high water requirements of faba beans, this starch- and protein-rich pulse is expected to expand into the Peace and Parkland regions of western Canada – especially into the growing areas that are historically too wet and cool for optimum pea production.

Hog producers require high-quality ingredients that are rich in digestible amino acids and energy, but that are low in antinutritional factors such as tannins – compounds that plants have evolved to make animals avoid eating their seeds. White-flowered, “zero-tannin” faba bean varieties have been developed to meet all of these requirements.

High Nutrient Content and Digestibility

The net energy available for pigs from faba beans exceeds that in soybean meal by nearly 8.5% - a valuable attribute considering that energy is the most expensive component of livestock diets in North America. The average protein content of faba beans is 28%, on an as-fed basis. As with peas, faba

beans are an excellent source of lysine, deficient in methionine, and may require supplementation with tryptophan in corn-based diets. Amino acid digestibilities are comparable to the high levels seen in peas (Table 1).

Performance Confirms Value

Two performance trials have been completed to date, confirming the feeding value of faba beans for both piglets

and grow-finisher hogs. Piglets have immature digestive tracts and are at their most sensitive to antinutritional factors that disrupt digestion. The excellent performance of very young piglets consuming up to 40% faba bean in their diets indicated that breeding programs have successfully eliminated the antinutritional effects of tannins from faba beans. It also confirmed the digestibility values established for faba beans in growing pigs.³

In the second study the overall growth performance of hogs consuming faba bean at 30% in the grower diets, followed by 20-30% in the finisher diets was equivalent to hogs consuming soybean meal rations. Carcass traits were excellent for faba bean-fed barrows, and equivalent to soybean meal with the exception of carcass lean depth (4mm = 6% reduction) in gilts.² These small differences are not uncommon because the actual nutrient content of samples may vary slightly from the digestibility trial values initially used for feed formulation. At the time that this performance trial was conducted, faba beans (\$200/MT) included at 30% of the diet resulted in a savings of \$33.55/MT of finisher hog feed.

Future Advances in Faba Beans

European breeders have succeeded in greatly reducing vicine and convicine in some of their faba bean cultivars. These antinutritional factors have been shown to reduce laying hen performance⁴. Although studies showed that the presence of vicine/convicine did not affect the standardized ileal digestibility of amino acids or nitrogen in hogs⁵, Canadian faba bean breeders intend to incorporate these genetic advances into future faba bean lines.

Table 1. Nutrient Profile of Faba Beans²

Characteristics			
Crude Protein (%)	28.62		
ADF (ADF%)	10.0N		
DF (%)	20.61		
Starch (%)	39.33		
DE (kcal/kg)	3573		
NE (kcal/kg)	2267		
Calcium (%)	0.11		
Phosphorus (%)	0.48		
Tannin (%)	1.05		
Amino Acid Content (90% DM Basis), with corresponding Standardized (SID) and Apparent (AID) Ileal Digestibilities			
	Content	SID	AID
Lysine (%)	1.76	88	85
Threonine (%)	0.89	80	75
Methionine (%)	0.21	76	71
Cystine (%)	0.36	69	64
Tryptophan (%)	0.25	80	76

^a 90% Dry Matter Basis

¹ See feed pea grading tables at http://www.grainscanada.gc.ca/newsroom/news_releases/2002/2002-05-03peas-e.pdf.

² Zijlstra, R. Zero-tannin faba bean nutrient assessment and swine performance trials for Alberta. Project #NIF-2003-031. June 2004. Alberta Agriculture, Food and Rural Development

³ Omogbenigun et al. Zero-tannin fababeans can fully replace soybean meal in late nursery diets. AAFRD.

⁴ Grosjean, F., Bourdillon, A., Rudeaux, F., Bastianelli, D, Peyronnet, C., Duc, G. and Lacassagne, L. 2000. Sciences et Techniques Avicoles. 32:17-23.

⁵ Vilarino, M, Skiba, F, Callu, P. and Crepon, K. 2004. Valeur energetique et digestibilite ileal des acides amines de differents types de faveroles chez le porc charcutier. Journees Recherche Porcine. 36:211-216.



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ZERO-TANNIN (ZT) AND NORMAL-TANNIN (NT) FABIA BEAN

Actual size

Photo credit:
Dr. Bert Vandenberg



Snowbird (ZT)



Fatima (NT)



FBF6-F3-2-1 (ZT)



SSNS-1 (NT)