

# Do Peas and Canola Meal have Synergistic Effects when Included in Diets for Growing Pigs?

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## SUMMARY

The objective of the study was to evaluate the inclusion of increasing levels of peas with or without canola meal in diets for growing pigs. A total of 64 barrows were fed diets containing different combinations of peas and canola meal to study the effect on performance. No significant differences in performance were observed; indicating that up to 30% peas with or without canola meal can be successfully included in diets for growing pigs.

## INTRODUCTION

It has been hypothesized that a bitter taste of field peas impacts palatability and limits their inclusion in swine diets. Canola meal (CM) may mask this taste and allow the use of higher levels of peas in diets for growing pigs. Moreover, peas are often included in diets with CM because both ingredients are produced in Western Canada and have proteins with complementary amino acid profiles. Specifi-

*“30% peas with or without canola meal can be successfully included in diets for growing pigs”*

cally, the high methionine content of CM protein compensates for this deficiency in pea proteins. The overall objective of this trial was to evaluate the interaction of field pea and canola meal at increasing levels in swine diets on feed intake and growth performance.

## MATERIALS AND METHODS

Several different approaches to finding the best combination of CM and peas were evaluated including 1) increasing the level of CM from 0 to 15% while maintaining the inclusion level of peas at 30%;

2) maintaining the level of CM at 15% and increasing the inclusion level of peas from 0 to 30%; 3) comparing the diet without peas or CM (control) with the diet with 30% peas and 0% CM and 4) evaluating the effect of the CM alone by comparing it to the diet with 0% peas

Sixty-four barrows with an initial body weight of  $33.5 \pm 2.2$  kg were assigned to one of 8 treatments, a control with no peas or canola meal and 7 treatment diets with different combinations of canola meal and peas (Table 1, 2).

Diets were formulated to meet or exceed the nutrient requirements of 25 kg grower pigs (Table 1).

Feed intake was measured daily for the first week of the trial and weekly thereafter. Body weights were measured weekly throughout the entire 42 day trial.

## RESULTS AND DISCUSSION

Daily feed disappearance in the first week was not affected by diet, CM or pea level ( $P > 0.05$ ; data not shown).

Inclusion of up to 15% CM or 30% peas in the diet of growing pigs for 6 weeks had no effect on ADG, ADFI or feed efficiency (linear effect  $P > 0.10$ ; Table 2). Similarly, the response of growing pigs to the inclusion of field peas in the diet was not affected by presence of the CM. With 30% peas in the diet daily feed intake ranged



**Table 1.** Composition of the experimental diets

Ingredient <sup>a</sup>	Control		Treatments					
	0	15	15	15	15	10	5	0
Canola Meal	0	15	15	15	15	10	5	0
Peas	0	0	10	20	30	30	30	30
Wheat	786	680	602	522	441	478	516	546
SBM	180	113	90	70	50	70	90	120
Peas	0	0	100	200	300	300	300	300
CM	0	150	150	150	150	100	50	0
Canola Oil	2	23	25	26	27	20	14	6
Lysine	3.6	3.6	3	2.2	1.4	1.5	1.6	1.4
Methionine	0.5	0.2	0.3	0.3	0.4	0.7	0.9	1.1
Threonine	1.1	0.8	0.7	0.6	0.5	0.6	0.7	0.8
Tryptophan	0.1	0	0.2	0.2	0.3	0.3	0.3	0.3
diCal P.	5.3	9.2	9.2	9.2	9.1	7.8	6.6	5.1
Calculated nutrient content, as fed								
DE (Mcal/kg)	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
Protein, %	17	17.8	17.4	17.5	18.4	18.1	17.8	17.7
SID Lys, %	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Calcium, %	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Phosphorus (total), %	0.55	0.55	0.55	0.55	0.55	0.55	0.55	0.55

<sup>a</sup> Diets also contained minerals, vitamins, salt and phytase (equal amounts among diets)

from 2.31 to 2.35 kg (SEM 0.08) at different levels of CM inclusion.

Comparing the control diet directly with the 30% peas/0% canola meal diet indicated a tendency toward an improved gain:feed ratio ( $P < 0.10$ ), for the diet with the peas included, providing further evidence that 30% peas can be included in the diet of growing pigs regardless of the presence of CM. There were no effects on any other production parameters.

## CONCLUSION

Performance was maintained in growing pigs with inclusion of either 30% field peas or canola meal up to 15% or any combination of the two in diets for growing pigs. Successful inclusion of peas in diets for growing pigs was not affected by simultaneous inclusion of CM.

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**Table 2.** The effect of inclusion level of peas and canola meal on growth rate, feed intake and feed efficiency in growing barrows

Canola Meal Peas	Inclusion Level in diet (%)								<i>P</i> Values				
	0	15	15	15	10	10	5	0	SEM	Linear Effects		Contrasts	
	0	0	10	20	30	30	30	30		CM	Peas	CM 0 vs 15%	Peas 0 vs 30%
n	8	8	8	8	8	8	8	8					
ADG, kg/d	1.06 (n=7)	1.050	1.09	1.08 (n=7)	1.09	1.06	1.11	1.09 (n=7)	0.03	0.70	0.42	0.92	0.43
ADFI, kg/d	243 (n=7)	2.32	2.39	2.42 (N=7)	2.34	2.35	2.33	2.32 (n=6)	0.08	0.78	0.81	0.28	0.27
Gain:feed	0.44 (n=7)	0.45	0.46	0.44 (n=7)	0.47	0.45	0.48	0.46 (n=6)	0.01	0.82	0.51	0.18	0.08

