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ALTERNATIVE TO MAIZE IN PIG DIETS. 1. REPLACING MAIZE WITH BEAN PODS IN THE DIETS OF GROWING - FATTENING PIGS IN THE TROPICS

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A group of 4 large white x landrace male pigs weighing initially about 13 kg were given maize-based diet (50% maize) with or without 5, 10 or 15% dried milled bean pod to replace maize. The results of the experiment indicated that mean daily gain (kg/d) was 0.57, 0.48, 0.50,0.44; feed intake (kg/kg gain) 3.50, 3.98, 3.82, 3.62; dressing percentage 66.35, 67.86,67.89,68.07; dressed out value 0.64, 0.66, 0.66, 0.66. Inclusion of bean pods in the diet had significant ($P<0.05$) effect on daily weight gain; but no significant ($P > 0.05$) effect on other parameters measured

Key Words: Pigs, maize, bean pod, growth performanece and carcass parameters

Maize is an important pig feed, nowadays it is being used more and more for human nutrition, thus making it necessary to search for substitutes (Babatunde et al 1975; Nishimuta et al 1980; Smith 1983; Yadav et al 1982). The objective of this work was to investigate the growth performance and carcass parameters of growing-fattening pigs fed diets containing different levels of bean pod meal.

Materials and Methods

Sixteen large white x landrace pigs weighing initially about 13.0 kg were randomly distributed into 4 groups of 4 pigs each on the basis of body weight. Four diets with differents maize: Bean pod meal ratios were compounded (Table 1). The diets were randomly allocated to pens and then the pigs were randomly allocated to diets. The pigs were housed on concrete floor and those receiving the same diet were housed in the same pen. All management practices were the same for all the animals.

Feeding was done twice daily (morning and afternoon) at the rate of 0.8 kg/pig/d at the start and increased at the rate of 0.5 kg/week until they reached 2.0 kg/pig/d. Fresh clean water was offered ad libitum throughout the experiment and the animals were weighed weekly before morning feeding. The animals were fed the experimental diets until they were slaughtered at about 65 kg body weight. Data were subjected to analysis of variance and differences between means were tested by Duncan's multiple range test.

Table 1:
Composition of pig diets containing bean pod meal

	Levels of bean pod meal			
	0%	5%	10%	15%
Components of diets (g/100 g)				
Maize meal	50	45	40	35
Bean pod meal	-	5	10	15
Groundnut cake	20	20	20	20
Meat and bone meal	5	5	5	5
Maize bran	24	24	24	24
Salt	1	1	1	1
Chemical composition (g/100 g DM)				
DM	90.77	90.77	91.26	90.86
Crude protein	26	24.02	24.44	25.97
Crude fibre	4.21	4.98	6.51	8.30
Grose energy (MJ/kg DM)	29.04	25.10	25.01	22.45

Results and Discussion

The composition and proximate chemical contents of the diets are given in Table 1. Replacement of maize by bean pod meal increased the percentage of crude fibre and decreased the energy contents of the diets containing bean pod as compared to the diet without bean pod. The results of the growth performance and carcass studies are presented in Table 2.

The inclusion of bean pod at 5, 10 or 15% levels in the diet significantly ($P < 0.05$) reduced mean daily gain by 12, 16 and 23% respectively compared with that of the control animals. The amount of feed consumed per kg body weight gain was not significantly ($P > 0.05$) affected by the bean pod inclusion in the diet. However, pigs given bean pods consumed about 3-13% more feed per kg body weight gain than those not receiving bean pods. These effects may be associated with increasing fibre and decreasing energy contents of the diets as the level of bean pod in the diet increases (Babatunde et al 1975). There were no significant ($P > 0.05$) differences in carcass parameters measured between the treatments (Table 2). However, the hot carcass weight, dressing percentage and dressed out value were higher and the head, offals, liver and heart expressed as percentage of hot carcass weight were lower for pigs given bean pods.

The results indicate that growing-fattening pigs could be raised satisfactorily with maize-based diets in which 5-15% of the maize has been replaced by bean pod meal with little or no adverse effects on their growth performance and carcass parameters, these support the findings of Kennelly and Adherne (1980) that levels of 4-10 percent crude fibre are unlikely to have significant effect on growth rate or carcass composition of growing-finishing pigs.

Table 2:
Growth performance and carcass data of pigs fed different levels of bean pod meal

	Niveles de harina de vainas de frijol				
	0%	5%	10%	15%	SEM
Daily weight gain (kg)	0.57[a]	0.48[b]	0.50[b]	0.44[b]	±0.03*
Feed intake (kg/kg gain)	3.50	3.98	3.82	3.62	±0.22 NS
Hot carcass weight (kg)	44.94	45.88	46.00	43.50	±1.32 NS
Dressing percentage	66.35	67.86	67.89	68.07	±1.24 NS
Dressed out value (Chilled wt/live wt)	0.64	0.66	0.66	0.66	±0.01 NS
Head (% of hot carcass weight)	12.27	10.88	10.38	10.48	±0.62 NS
Liver & Heart (% of hot carcass weight)	3.61	3.69	3.64	3.43	±0.35 NS
Offals (% of hot carcass weight)	9.75	8.43	8.96	9.23	±0.52 NS

NS P > 0.05; * P < 0.05

Las cantidades seguidas por diferentes letras en una fila difieren significativamente (P < 0.05)

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