

A Preliminary Study on Developing a Feed Ration with Poultry Offal Meal for Young Fattening Pigs

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Introduction

There are several important factors to be concerned when conducting a commercial piggery including feeding and housing. Feeding is one of the most important tasks based on meeting the animal's requirements for energy and protein to optimize the growth performance and carcass lean content (Pettigrew and Esnaola, 2001). In general feed cost accounts for 55 % - 75 % of the total cost in any commercial pig farm (Ologhobo *et al.*, 2012). As an alternative for high cost ingredients, some local feed that are inexpensive can be used in feed formulation for the fatteners which provide complete nutrition. Poultry Offal meal (POM) is one of the highly important feed stuffs available for the animal feed formulation (Hansen *et al.*, 2006). Recycling of poultry offal waste helps to reduce the high cost of dietary ingredients and feeding that are associated with intensive animal production systems as well as to reduce the environmental and health hazards to human (Ologhobo *et al.*, 2012). The objective of this experiment was to develop a ration with POM for feeding fattening pigs to reduce the cost of production and supply required level of nutrients.

Methodology

The current study was carried out at the Maxies & Company (Pvt) Ltd, Wennappuwa. One month old twelve fatteners were divided into four groups and fed with three experimental feed rations (Feed A, 23 % POM; Feed B, 20 % POM and Feed C, 18 % POM) and the commercial pig starter ration was given as the control feed for the fourth group. All three experimental feed rations were formulated with different proportions of POM and other ingredients as listed in Table 1., according to the swine nutritional recommendations of National Research Council (NRC, 1995).

Table 1. Compositions of the test feeds provided to fatteners in the feeding trail

Feed ration	Ingredients (%)								
	Rice bran	Wheat bran	Maize	POM	Vitamin premix	Salt	Lysine	Shell grits	CuSO ₄
Feed A	25.0	25.0	26.0	23.0	0.25	0.20	0.10	0.40	0.05
Feed B	25.0	28.0	26.0	20.0	0.25	0.20	0.10	0.40	0.05
Feed C	30.0	28.0	23.0	18.0	0.25	0.20	0.10	0.40	0.05
Control	-	-	-	-	-	-	-	-	-

*Since the pig starter is commercially manufactured and purchased, ingredient composition is not available

Each animal was fed individually with the same daily feed allowance. The feeding trial was carried out for 9 weeks and the weekly average body weight gain was measured. At the end of the experimental period, the feed intake:weight gain ratio for each group was measured. The data obtained from the feeding trial were analyzed using Kruskal-Wallis test in SPSS (V.16.0.2-2008) software program.

Results and Discussion

According to the results, there was no significant difference in weekly body weight gain (Figure 1) of the fatteners (Table 2) fed with four feed rations ($p>0.05$). The mean feed intake:weight gain ratio for the control, ration A, B, and C were $5.2\pm 0.03\%$, $4.5\pm 0.02\%$, $5.2\pm 0.00\%$, and $4.9\pm 0.06\%$ respectively. Based on the cost analysis, the lowest cost formulation is the feed ration C (Table 3).

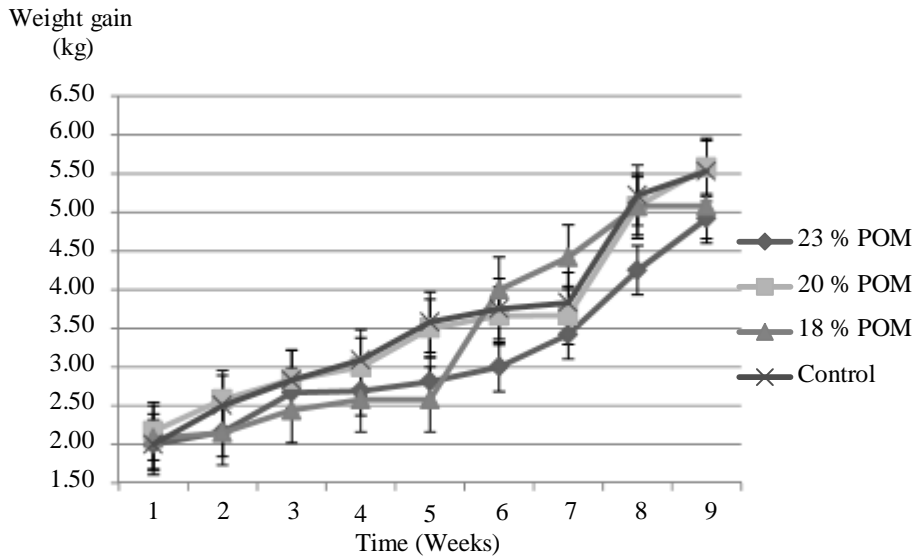


Figure 1. Body weight gain of fatteners fed with four different feed rations

Table 2. Average weekly body weight gain (kg) of fatteners fed with four test feed rations

Week	Feed Ration			
	23% POM	20% POM	18% POM	Control
1	2.00±0.09	2.17±0.00	2.08±0.02	2.00±0.07
2	2.16±0.02	2.58±0.02	2.15±0.08	2.50±0.06
3	2.67±0.04	2.84±0.08	2.44±0.05	2.83±0.08
4	2.69±0.01	3.00±0.04	2.58±0.03	3.09±0.02
5	2.81±0.02	3.50±0.02	2.58±0.01	3.58±0.00
6	3.00±0.03	3.66±0.06	4.00±0.00	3.75±0.03
7	3.42±0.07	3.67±0.03	4.42±0.05	3.83±0.04
8	4.25±0.04	5.08±0.08	5.08±0.04	5.22±0.02
9	4.92±0.01	5.58±0.06	5.08±0.09	5.53±0.09

The results revealed that the effect of experimental diets have no significant impact on the weight gain of the fatteners. This may be due to the compatibility of the experiment rations (A, B, and C) with the recommended nutrient allowances. Incorporation of POM in to the ration did not change the feed intake and performance of the experimental animals, it can be used successfully in commercial swine feed formulations.

Table 3. Cost analysis for 1 kg of four feed rations

Feed ration	Total Cost (Rs.)
23 % POM (A)	31.03
20 % POM (B)	31.00
18 % POM (C)	30.12
Control/ Commercial *	55.61

*Ingredient wise cost is not available.

According to the cost analysis, there is no significant difference between A, B and C ($p>0.05$) and when compared with the control it showed 50 % reduction. Also there is no significant difference among the feed intake:weight gain ratios among the four treatments ($p>0.05$).

Conclusion

The conventional commercial pig starter ration can be replaced by the feed ration having 18 % POM successfully without masking the performance of young fattening pigs in order to maximize the profitability by cutting down the feed cost by 50%.

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