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STUDY ON EFFECT OF GARBAGE FEEDING WITH CONCENTRATE AND MINERAL MIXTURE ON GROWTH RATE OF LARGE WHITE YORKSHIRE PIG

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ABSTRACT
Food waste (garbage) is a cheap source of nutrition to pigs. High feed cost is a limiting factor for the development of pig industry in India. This paper examines the growth and production cost of piglets exclusively fed on garbage, compared to those fed on concentrate supplementation independently and in combination with mineral mixture along with garbage for a period of three months. Thirty six piglets of Yorkshire breed of 3 months of age were divided in to three groups with twelve piglets in each group. The first group of piglets was given garbage ad lib that served as the control (T-1). The second group (T-2) was given concentrate @ 300 g, 400 g, and 500 g in 1st, 2nd, and 3rd months of the experiment, respectively along with garbage. The third group (T-3) was given mineral mixture @ 10 g/day, besides concentrate mixture as given to T-2 animals along with garbage. The final body weight (kg) and the average daily gain (kg) of the piglets were 51.4±0.20 and 0.45± 0.02 kg respectively in T1 group, 56.2±0.41 and 0.49±0.01kg respectively in T2 group, and 59.1±0.52 and 0.53±0.01 kg respectively in T3 group. The differences between the groups with respect to final body weight and average daily gain in body weight were statistically significant (P≤0.01). The auxiliary feed cost per kg live weight gain in T3 group (Rs. 95.30) was lower than in T2 group (Rs. 142.50). It is concluded that the growth of the piglets under *ad lib* solo feeding of garbage can be augmented with concentrate and mineral supplementation . The combination was more cost effective than either of the supplements alone.

KEY WORDS: Piglets, Garbage, Concentrate, Mineral mixture.

INTRODUCTION

Swine industry with relatively low profit margin, particularly due to high cost of feed, is still a difficult venture in India (Njuki *et a1.* 2010).The feeding of food waste (garbage) to swine is a common practice throughout the world and is often concentrated around metropolitan centres, as it de-escalates the production cost. But, its low dry matter content (27%) retards the nutrient intake, thus limits productivity (Westendorf *et a1.*, 1999). This paper elucidates the growth performance and cost-effectiveness of piglets under garbage feeding, compared to supplementation of diet with concentrate independently and in combination with mineral mixture along with garbage.

MATERIALS & METHODS

The present study was carried on 36 Yorkshire piglets of 3 months of age of both sexes reared at Instructional Livestock Farm Complex (ILFC), TANUVAS, Chennai-51.The pigs were divided into three groups with 12 piglets in each group.

The first group of piglets was given garbage ad lib that served as the control (T_1).The garbage obtained from hostels of Vellammal Educational Institute. The second group (T_2) was given concentrate mixture @300 g, 400 g, and 500 g in 1st, 2nd and 3rd months of the experiment, respectively, along with garbage. The third group (T_3) was given mineral mixture @ 10g/day, besides concentrate mixture as given to T_2 animals along with garbage. The animals were maintained under the above feeding schedule for three months. The concentrate mixture contained 60% maize, 20% wheat bran, 17% soya, 2% mineral mixture and 1% salt and 2700 kcal/kg metabolizable energy (ME). The one kg of mineral mixture contained calcium-23%, phosphorus-12%, magnesium-6.5%, iron-0.5%, iodine-0.026%, copper-0.077%, manganese-0.12%, cobalt-0.012%, zinc-0.38%, sulphur-0.5%, fluorine-0.07%, selenium-0.3ppm. The data on body weights and the additional cost per kg weight gain were statistically analyzed by the method described by Snedecor and Cochran (1994).

RESULTS & DISCUSSION

The growth performance of piglets is presented in Table-1. The results indicated that the final body weight (kg) of the piglets in T-1 group (51.4± 0.20) was lower than the final body weight of the piglets in T-2 (56.2 ± 0.41) and T-3 (59.1 ± 0.52) groups. The average daily gain in body weight (kg) of T-1 group (0.45 ± 0.02) was lower than the average daily gain in T-2 (0.49±0.01) and T-3 (0.53 ± 0.01) groups. The differences between the groups with respect to final body weight and average daily gain in body weight were statistically significant (P≤ 0.01).

The results reflected that food waste (garbage) did not provide adequate nutrition for growth, because its low dry matter content (27%) retards the nutrient intake, thus

limits productivity (Westendorf *et al.,* loc cit). This corroborates the finding of Saikia and Bhar (2010) who reported higher average daily gain in piglets maintained on standard porcine ration than those fed on garbage. However, the growth of piglets fed on concentrate along with garbage was lower than the animals fed on concentrate and mineral mixture combination along with garbage, because a properly balanced mineral, particularly trace elements (Cu,Zn,Fe) in the diet is required for proper growth (Van Heugten *et al.*, 2002). Our results were in accordance with the observations of Tian *et al.* (2001), who had reported significantly ($P \leq 0.05$) higher average daily gain (ADG) in growing pigs supplemented with 200% mineral mixture over 50% mineral supplemented animals as well as well as the control animals, stressing the importance of minerals in boosting the growth of growing pigs. The cost per kg live weight gain was lower in T-3 group (Rs. 95.30) than in T-2 group (Rs. 142.50) indicating the cost effectiveness of mineral supplementation (Table-1). The study indicated that the feeding pigs with garbage alone will get higher dividend from addition of concentrate and mineral mixture supplementation combination to the diet.

TABLE 1. Growth performance and production cost of piglets under different feeding regimen

Sl.No	Parameter	Treatment groups		
		T_1	T_2	T_3
1	Number of animals	12	12	12
2	Initial body weight(kg)	11.2 ±0.15	12.05 ±0.23	11.4 ±0.17
3	Final Body Weight(kg)	51.4 ±0.20	56.2 ±0.41	59.1 ±0.52
4	Total Weight Gain(kg)	40.3 ±0.35	44.1 ±0.27	47.8 ±0.45
5	Daily weight Gain(kg)	0.45 ±0.02	0.49 ±0.01	0.53 ±0.01
6	Supplemental Feed intake(kg)	---	36.00	36.90
7	Supplemental Feed Cost(Rs)	---	684	734
8	Total weight gain	---	4.8	7.7
9	Income from Weight gain(Rs)	---	624.00	1001.00
10	Cost Per Kg Weight gain(Rs)	---	142.50	95.3

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