

Study on the Effect of Replacing Traditional Feed by Partial Concentrate Ration on Growth Performance of Growing Crossbred Piglets in Rural Tribal Areas of Manipur

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ABSTRACT

The present investigation was designed to study the effect of concentrate ration supplemented to traditional pig feed on the growth rate of crossbred piglets. Studies were carried out on twelve weaned crossbred piglets aged about 3 months of age at the Department of Animal Science, Central Agricultural University, Imphal, Manipur. The piglets were grouped into two treatment groups i.e. T₁ and T₂ having 6 piglets in each group on the basis of body weight in such a way that mean body weight of each group remained almost same. The control diet (T₁) was prepared with common traditional feed which are traditionally fed to pigs in the rural tribal areas of Senapati district, Manipur. The experimental diet (T₂) was constituted by replacing 25% of T₁ diet with concentrate feed. The live weight at day 1 of the experiment were 13.83 ± 0.40 and 13.75 ± 0.44 Kg in T₁ and T₂ dietary groups, respectively which did not differ significantly from each other. However, at the end of experimental period of 16th week, significantly higher body weight was noticed in T₂ (43.08 ± 1.81 Kg) than those of T₁ (35.66 ± 1.24 Kg). Similarly, significantly higher average daily, weekly and total weight gain during experimental period of 16th weeks was observed in the pigs maintained on T₂ diet than those of T₁ group, the value being 194.94 ± 9.05 and 261.90 ± 13.52 gm, 1.36 ± 0.06 and 1.83 ± 0.09 Kg and 21.83 ± 0.01 and 29.33 ± 1.51 Kg in T₁ and T₂ diets, respectively. It was concluded that supplementation of the traditional feed by at least 25% concentrate ration induces faster growth, lower mortality and better reproductive performance of crossbred piglets.

Keywords: Average daily weight gain, growth performance, traditional pig feed

INTRODUCTION

The North Eastern Hill (NEH) region of India comprises of eight states *viz.*, Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura. In the NEH region of India, pig rearing is a part of livelihood and nutritional security of the people and the system of pig production in the region is unique and different from the standard system (Das and Bujarbaruah, 2005). In the Senapati district of Manipur, located between 24^o30' N to 25^o45' N

latitude and 93^o30' E to 94^o30' E longitudes with an altitude of 1061 to 1788 meters above sea level, majority of the population are confined to rural areas. Hence, agriculture and livestock rearing are the main source of income generation for a majority of the tribal population. Agriculture, however, is of subsistence type characterized by mono cropping, low cropping intensity etc.; as a matter of which agriculture alone cannot support the livelihood needs of the tribal population in the district unless livestock rearing is

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incorporated as a component in the overall hill farming system. It has been observed that the farmers of the Senapati district depend on agriculture and livestock rearing with special preference to pigs. The tribal people of the district consider pork as a delicacy on auspicious occasions and traditional rituals. Although every household rear pigs, they are unable to get ample economic benefits as they are not aware of scientific management and feeding of pigs. Over and above, non-availability of good germplasm, high cost of commercial pig feeds are also the reasons for low income generation through pig rearing in these rural sectors. Hence, the present work was undertaken to study the effect of replacing traditional pig feed by partial concentrate ration on growth performance of growing crossbred piglets in rural tribal areas of Senapati district of Manipur.

METHODOLOGY

The present study was carried out using twelve weaned crossbred Hampshire piglets which are about 3 months old in the Piggery Unit, Dept. of Animal Science, Central Agricultural University, Imphal. The piglets were divided randomly into two equal groups comprising of 6 piglets in each group on the basis of body weight in such a way that the mean body weight of each group were almost equivalent.

The control diet (T_1) was prepared with common ingredients such as colocasia, banana pseudo stem, pumpkin, cabbage, maize, kitchen waste, rice bran etc. which are traditionally fed to pigs in the study areas. The piglets of T_1 dietary groups were maintained completely on 100% traditional feed. The experimental

diet (T_2) was constituted by replacing 25% of T_1 diet with formulated concentrate feed as given in Table-1 (Anon., 2008).

Before starting, the experiment piglets were given anthelmintic drug, Mebendazole (Helmazole @ 10 mg/kg body weight) to eliminate internal parasite. Diluted (1:200) Malathion were sprayed on their body surface at day 1 and thereafter at 2 months interval to keep them free from ecto-parasites.

Piglets of each group were fed with their respective diets right from initial stage to 16th weeks of experimental period. Piglets were fed at regular intervals and clean drinking water was provided *ad libitum*. The experimental sty along with feeding and watering trough were cleaned and washed every day.

Piglets were weighed at day 1 of the experiment and at regular intervals of 4 weeks with the help of a spring balance and/ or weighing balance. The data were compiled properly for statistical analysis as per Snedecor and Cochran (1989).

RESULTS AND DISCUSSION

Results presented in Table-2 showed non-significant influence of dietary groups on body weight at initial stages to 8 weeks of experimental period and thereafter upto the end of the experimental period of 16 weeks, the growth pattern was significantly observed. The live weights at the start of experiment (initial stage) were 13.83 ± 0.40 and 13.75 ± 0.44 Kg in T_1 and T_2 dietary groups, respectively which did not differ significantly from each other. However, at the end of experimental period of 16 weeks (Table-2 and Figure-1), significantly higher body weight (43.08 ± 1.81 Kg) was noticed in T_2 dietary group (25% replacement of traditional feed by concentrate ration) than those of T_1 (100% traditional feeds) dietary group (35.66 ± 1.24 Kg).

Further analysis of variance (Table-2) done for body weight gain indicated significantly higher daily, weekly and total body weight gain in the pigs maintained on T_2 diet than those of T_1 diet group, the

Table 1: Composition of Concentrate feed for grower pig

Feed ingredients	Per cent
Maize (Crushed)	50
Wheat bran	20
Ground nut cake	18
Fish meal	5
Molasses	5
Common salt	1.5
Mineral mixture	0.5
Feed additives as per recommendation may be added.	

Table 2: Average body weight and weight gain at different stages of experimental periods in various dietary groups

Body weight at	T ₁	T ₂	Difference (T ₂ – T ₁)
Initial '0' week (Kg)	13.83 ± 0.40	13.75 ± 0.44	- 0.08 ^{NS}
4 weeks (Kg)	17.00 ± 0.68	18.75 ± 0.73	1.75 ^{NS}
8 weeks (Kg)	23.75 ± 0.82	26.66 ± 1.19	2.91 ^{NS}
12 weeks (Kg)	29.00 ± 1.02	34.91 ± 1.56	5.91 [*]
16 weeks (Kg)	35.66 ± 1.24	43.08 ± 1.81	7.42 ^{**}
Daily weight gain (gm)	194.94 ± 9.05	261.90 ± 13.52	66.96 ^{**}
Weekly weight gain (Kg)	1.36 ± 0.06	1.83 ± 0.09	0.47 ^{**}
Total weight gain (Kg)	21.83 ± 1.01	29.33 ± 1.51	7.50 ^{**}

Each value is the average of 6 observations. NS – Nonsignificant, * P < 0.05, ** P < 0.01

values being 194.94 ± 9.05 and 261.90 ± 13.52 gm, 1.36 ± 0.06 and 1.83 ± 0.09 Kg and 21.83 ± 1.01 and 29.33 ± 1.51 Kg in T₁ and T₂ diets, respectively.

The results point towards the fact that the T₂ dietary group pigs showed better growth pattern than those in the T₁ dietary group pigs.

It could clearly observed from the graph for weight gain plotted against time period (Figure-1) that the gradual increase in weight of the pigs was more pronounce in the case of T₂ dietary group as compared to that of the T₁ dietary group.

The resulting difference in the developmental pattern between the two groups in terms of gain in body weight is due to the fortification of the traditional pig feed with 25% concentrate ration (Table-1) which delivers adequate amount of carbohydrates, fats, proteins and minerals which are essential for the proper growth and development of the pigs.

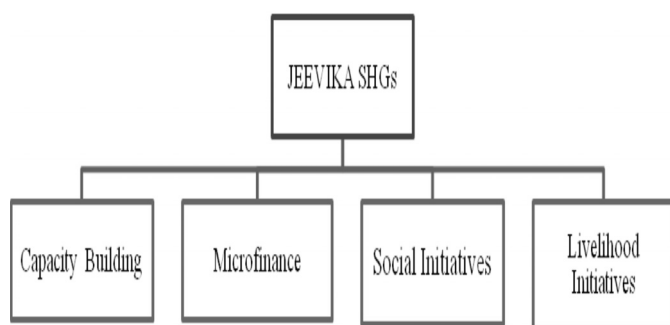


Fig. 1: Average body weight at different periods in different feeding regime

Depressing effect of growth of pigs maintained on 100% traditional feed attributed to the fact that the availability of different types of nutrients in feed particularly crude protein in 100% traditional feed (T₁) was lower i.e. not upto the standard in comparison to feed supplemented with 25% concentrate mixture (T₂). Hence, insight can be gained from the findings that pig cannot be raised successfully only on locally available traditional pig feed, rather they should be provided with concentrate feed along with vegetables, plants, crop and kitchen waste etc. for better economic return from pig farming in villages. Similar findings was also reported by Kujur *et al.* (2004) through experiments to assess the performance of crossbred pigs under different systems of management and feeding regimes and they also suggested to provide concentrates with local feed resources to pig.

CONCLUSION

On the basis of present findings, knowledge could be imparted to the pig farmers of the present study areas to supplement their traditional pig feed by at least 25% concentrate ration for faster growth, lower mortality and better reproductive performance. The idea of fortification of traditional pig feed in the rural tribal villages would also improve the health of the pigs apart from decreasing the time of maturity thereby improving the socio-economic status of the tribal pig farmers.

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