

CARCASS CHARACTERISTICS OF CROSSBRED LARGE WHITE YORKSHIRE PIGS UNDER DIFFERENT FEEDING REGIMENS

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ABSTRACT

An experiment was conducted to assess the carcass characteristics of crossbred Large White Yorkshire pigs under different feeding regimes. A total of 32 weaned crossbred (Large White Yorkshire 75 % and Desi 25 %) piglets were selected at random and were divided into four groups consisting of eight piglets in each group and they were subjected to four different feeding treatments viz., 100 per cent concentrate (T1), 100 per cent swill (T2), 75 per cent swill and 25 per cent concentrate (T3), 50 per cent swill and 50 per cent concentrate feeding (T4). The pigs were reared upto 180 days of age and all the animals were slaughtered at the end of the experiment. Data on dressing percentage, back fat thickness, loin eye area and other carcass traits were recorded. Slaughter studies revealed that 75 per cent swill fed group had significantly ($P<0.01$) higher carcass weight, dressing percentage, loin eye area and carcass length than the other treatment groups. Back fat thickness was significantly ($P<0.01$) higher in 100 per cent swill than the other treatment groups.

Key words : Carcass traits, swill feed, concentrate feed, cost of production, crossbred LWY pigs

INTRODUCTION

The modern technology of pig feeding consists of meeting the biological needs with proper combination of feed ingredients and locally available by-products to yield pig meat at cheaper cost. Pork is an important source of high quality animal protein. Mutton, beef and chicken meat alone cannot meet the animal protein requirements of the growing population. In this context, the quick growing multiparous pig is one of the best choice to meet the demand for animal protein. Hence this study was conducted to assess the carcass traits of pigs raised under different feeding regimes.

Thirty two weaned crossbred (Large White Yorkshire 75% and Desi 25 %) piglets maintained under the All India Co-ordinated Research Project on pigs at Livestock Research station, Kattupakkam were selected for this study. The randomly selected piglets were divided into 4 groups with each group consisting of 8 animals and they were subjected to four different feeding regimes viz., Group I (T1)-Concentrate feed alone, Group II (T2)-Swill feed alone, Group III (T3)-75% swill feed and 25% concentrate feed and Group IV (T4)- 50% swill feed & 50% concentrate feed. The pigs were housed intensively in four separate pens in the same building with concrete floor. Concentrate

MATERIALS AND METHODS

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feed having crude protein (CP) content of 18.04 %.with the following ingredient composition was used : Maize-35 parts; Cumbu- 6.5 parts; Ground Nut Cake-7 parts; Wheat bran-10 parts; Deoiled Ricebran-26 parts; Soyabean oil cake-8 parts; Dry fish-5 parts; Mineral mixture -2 parts and common salt-0.5 parts. The pigs had free access to water in individual pens. The pigs were reared upto 180 days of age. All the pigs were slaughtered at the end of the experiment to study the carcass traits. The swill was collected from students hostel situated near the farm. The data on carcass weight, dressing percentage, carcass length, back fat thickness, loin eye area and other carcass traits were recorded and the data analyzed statistically for the significance (Snedecor and Cochran, 1994).

RESULTS AND DISCUSSION

Carcass weight

The carcass weight (Table 1) was significantly ($P < 0.01$) higher in 75 per cent swill fed group ($24.40 \pm 0.48\text{kg}$) compared to 100 per cent swill ($20.02 \pm 0.43\text{kg}$); 50 per cent swill ($19.32 \pm 0.36\text{ kg}$) and 100 per cent concentrate fed group ($18.55 \pm 0.53\text{ kg}$). This might be due to the swill feed having a higher fat content, resulting in greater adipose tissue deposition. This finding of high carcass weight was corroborated by Srinivas and Sagar (1991). This result might also be due to variation in final weight between treatment groups leading to difference in carcass weight. This was in accordance with Mishra *et al.* (1989), Bhadoria (1996). On the contrary Westendorf *et al.* (1998) and Jha *et al.* (1999) reported that concentrate fed group had high carcass weight than garbage fed group. The dressing percentage was significantly ($P < 0.01$) higher in 100 per cent swill fed group ($71.04 \pm 1.05\text{ kg}$) than 75 per cent swill ($66.01 \pm 0.98\text{ kg}$) 50 per cent swill fed group ($65.02 \pm 0.83\text{ kg}$) and 100 per cent concentrate fed group ($65.02 \pm 0.78\text{ kg}$). This might be due to more fat deposition in garbage fed group than concentrate feed group. These finding were in agreement with Srinivas and Sagar (1991)

and Sinha *et al.* (1993). On the contrary Somanadha Sarma *et al.* (1996) and Jha *et al.* (1999) observed that the concentrate fed group had high dressing percentage than garbage fed groups. Total inedible offals (kg) was significantly ($p < 0.01$) higher in 50 per cent swill fed groups ($3.67 \pm 0.06\text{kg}$) than 75 per cent swill ($3.35 \pm 0.04\text{kg}$); 100 per cent swill ($3.30 \pm 0.04\text{kg}$) and 100 per cent concentrate fed group ($3.06 \pm 0.05\text{kg}$). There was no significant difference between 100 per cent swill and 75 per cent swill fed groups.

Carcass length

There was highly significant ($p < 0.01$) difference in carcass length of 75 per cent swill fed group ($63.50 \pm 0.50\text{cm}$) compared to 100 per cent swill ($62.50 \pm 0.68\text{cm}$); 50 per cent swill ($61.00 \pm 0.62\text{ cm}$) and 100 per cent concentrate fed group ($57.50 \pm 0.42\text{cm}$). There was no significant difference between 50 per cent swill and 100 per cent swill fed groups. These might be due to higher carcass weight with increase in carcass length. This finding was in agreement with Codray *et al.* (1978) and Sinha *et al.* (1993). On the contrary Jha *et al.* (1999) observed that concentrate fed group had high carcass length than garbage fed group.

Back fat thickness

The 100 per cent swill fed group had significantly ($p < 0.01$) high back fat thickness ($29.16 \pm 0.66\text{mm}$) compared to 75 per cent swill group ($27.50 \pm 0.33\text{mm}$); 50 per cent swill group ($25.50 \pm 0.60\text{mm}$) and 100 per cent concentrate fed group ($18.66 \pm 0.61\text{mm}$). These might be due to definite influence of the feeding on body fat deposit. The swill feed contained more fat (16.17 ± 0.41) than concentrate feed (3.35). The effect of high fat nutritional diet, leads to conversion of excess energy into fat deposition. This was in accordance with Srinivas and Sagar (1991) and Sinha *et al.* (1993). On the contrary Somanadha Sarma *et al.* (1996) and Jha *et al.* (1999) reported that concentrate fed group had high back fat thickness than garbage fed group.

Loin eye area

The loin eye area (cm²) was significantly higher in 75 per cent swill fed group (23.60 ± 0.31cm²) compared to 100 per cent swill group (22.40 ± 0.47cm²); 50 per cent swill group (21.80 ± 0.52cm²) and 100 per cent concentrate (21.20 ± 0.47cm²). However there was no significant difference between 100 per cent concentrate, 50 per cent swill and 100 per cent swill groups and also 75 per cent swill and 50 per cent swill group (Table 1). These might be due to large variation in body weight at the time of slaughter as well as different dietary protein level in the diet. These finding were corroborated by Krider and Carrol (1971) and Sinha *et al.* (1993). On the contrary Jha *et al.* (1999) observed that concentrate fed group had high loin eye area than garbage fed group.

Total edible offals

The total edible offals (kg) was significantly (P<0.01) high in 100 per cent swill fed group than 50 per cent swill, 100 per cent concentrate and 75 per cent swill group (17.54 ± 0.22 kg, 16.14 ± 0.13 kg, 15.89 ± 0.18kg and 14.76 ± 0.21kg respectively). There was significant difference between 100 per cent swill fed group compared to 50 per cent swill, 100 per cent concentrate and 75 per cent swill fed groups.

Meat, fat and bone

The meat (per cent) was found to be significantly (P<0.01) higher in 100 per cent concentrate group (54.28 ± 0.22 per cent) compared to 50 per cent swill (49.30 ± 0.35 per cent); 75 per cent swill (48.35 ± 0.27 per cent) and 100 per cent swill fed groups (45.88 ± 0.81 per cent). There was no significant difference between 75 per cent swill and 50 per cent swill groups. These might be due to less fat accretion in 100 per cent concentrate group. The fat (per cent) was found to be significantly higher (P<0.01) in 100 per cent swill fed group (40.07 ± 0.51 per cent) compared

to 75 per cent swill fed (37.36 ± 0.25 per cent); 50 per cent swill fed (36.15 ± 0.50 per cent) and 100 per cent concentrate group (27.13 ± 0.20 per cent). There was no significant difference between 75 per cent swill and 50 per cent swill group. These might be due to more fat accretion in 100 per cent swill fed group. The bone (per cent) was found to be highly significant (P<0.01) in 100 per cent concentrate group (18.20 ± 0.11 per cent) compared to 50 per cent swill group (14.14 ± 0.53 per cent); 75 per cent swill group (14.00 ± 0.40 per cent) and 100 per cent swill fed group (13.64 ± 0.65 per cent). But there was no significant difference between 50 per cent swill, 75 per cent swill and 100 per cent swill fed group. This might be due to the more bone content and less fat accretion in 100 per cent concentrate group.

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Table - 1
Carcass characteristics of crossbred (Large White Yorkshire 75 % and Desi 25 %) pigs under different feeding regimes

Parameters	Treatments			
	T1	T2	T3	T4
Carcass weight (kg)	18.55 ± 0.53 ^a	20.02 ± 0.43 ^a	24.40 ± 0.48 ^b	19.32 ± 0.36 ^a
Dressing percentage	65.02 ± 0.78 ^a	71.04 ± 1.05 ^b	66.01 ± 0.89 ^a	65.01 ± 0.88 ^a
Carcass length (cm)	57.50 ± 0.42 ^a	62.50 ± 0.68 ^{ab}	63.50 ± 0.50 ^b	61.00 ± 0.62 ^b
Back fat thickness (mm)	18.66 ± 0.61 ^a	29.16 ± 0.66 ^b	27.50 ± 0.33 ^{ab}	25.50 ± 0.60 ^b
Loins area (cm ²)	21.20 ± 0.47 ^a	22.40 ± 0.47 ^{ab}	23.60 ± 0.31 ^b	21.80 ± 0.32 ^a
Total edible offal (%)	15.89 ± 0.18 ^a	17.50 ± 0.22 ^b	14.76 ± 0.21 ^a	16.14 ± 0.13 ^b
Total inedible offal (%)	3.06 ± 0.03 ^a	3.30 ± 0.04 ^b	3.33 ± 0.04 ^b	3.67 ± 0.06 ^b
Meat (%)	54.28 ± 0.22 ^a	45.88 ± 0.81 ^a	48.33 ± 0.27 ^b	49.30 ± 0.33 ^b
Fat (%)	27.13 ± 0.20 ^a	40.07 ± 0.31 ^b	37.34 ± 0.25 ^b	36.13 ± 0.30 ^b
Bone (%)	18.20 ± 0.11 ^a	13.64 ± 0.63 ^a	14.00 ± 0.40 ^a	14.14 ± 0.5 ^a

Mean values having different superscript in a row differ significantly (P<0.01)