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Research Article

COMPARATIVE STUDY OF ECONOMICS OF CROSSBRED, INDIGENOUS AND EXOTIC PIGS

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ABSTRACT
A research trial was conducted to compare the merits and demerits of crossbred pigs over indigenous and exotic pigs with respect to growth and to study the economic feasibility of rearing crossbred pigs. Three groups of twelve weaned female piglings each belonging to indigenous (Desi), Large White Yorkshire (LWY) and crossbred (CB) (LWY × Desi) of Centre for Pig Production and Research, Mannuthy were selected as uniform as possible with regard to age and body weight. Animals in each breed group were randomly divided into two equal dietary treatment groups of six. Treatment group one was fed with a ration specified by ICAR and treatment group two with a ration containing 10 per cent less crude protein than ICAR ration. All the pigs were fed iso - caloric ration as per ICAR recommendation. The cost of production per kg live body weight was found to be less (Rs. 45.30) in ICAR ration than 10 per cent less crude protein ration (Rs.46.02) due to higher feed efficiency and better growth rate. The overall result obtained during the course of present study is that the unit cost of production is lesser for animals maintained on ICAR ration. So, the cost of production per kg of live body weight was calculated, Large White Yorkshire had lowest cost of production when compared to crossbred and Desi pigs. But the cost of production per kg live body weight is lower for crossbred pigs maintained on 10 per cent less crude protein than ICAR ration. The fact that on low protein diet cost of production was lower than on full protein diet, points to that.

Keywords: *Crossbred, Indigenous and Exotic Pigs, Economics*

INTRODUCTION
Swine can effectively utilize agricultural by products and many other waste materials. Compared to other meat animals pigs yield higher dressing percentage. Pork has higher energy value than beef or mutton. In India pig rearing is still not in a satisfactory state and almost entirely in the hands of people with little resources who continue to follow the primitive methods of rearing. There are three basic genetic groups of pigs in our country i.e., desi pigs, exotic pigs and a non- standardized crossbred of these two. The common Indian desi pig is a scrub animal, slow grower, small sized and producer of small litters. These are rich in genetic variability and are endowed with many positive aspects like disease resistance and tolerance to climatic variables. But these animals are poor in reproductive and productive traits.
Exotic pigs are good converters of feed with low mothering ability. Recognizing the merits and potential of exotic pigs as a source of animal protein, the Government of India is paying considerable attention in the development of pig industry. A number of pig production centres have been established in several states and the farmers are being educated on pig raising on scientific lines. There are not many reports comparing exotic breeds like Large White Yorkshire with indigenous desi pigs and the available reports indicate a significantly lower growth rate and a higher production cost in indigenous stock when compared to Large White Yorkshire pigs (Sasendran and Rajagopalan, 1981, 1982). While crossing the desi pigs with exotic animals, a substantiate increase in both productive and reproductive performance as well as disease resistance in the resultant crossbreds is yet to be ascertained.
Efficiency of production depends on the successful interaction of several factors. Of these, nutrition is by and large the most important. The efficiency of the pig in this respect can be divided into different

categories on the following basis (i) biologic efficiency (ii) economic efficiency. When biologic efficiency is calculated, the feed consumed and the weight gained alone is considered. On the other hand, when economic efficiency is assessed, units of feed consumed, labour charges and equipment charges involved are also taken in to account. Protein is one of the most important nutrients required by all classes of Livestock and especially by pig for own body processes as well as to synthesize different products.

Hence, the present study was undertaken with the following objectives and to make suitable recommendations, which can be practiced by farmers.

1. To study the economics of rearing crossbred pigs, indigenous and exotic pigs.
2. To study the feasibility of reducing the digestible crude protein content of swine ration by 10 percent from the ICAR standards.

MATERIALS AND METHODS

Three groups of twelve weaned female piglings each belonging to indigenous (Desi), Large White Yorkshire (LWY) and crossbreds (CB) (LWY × Desi) of Centre for pig Production and Research (CPPR), Kerala Agricultural University, Mannuthy were selected as the experimental animals. Animals for the study were selected as uniform as possible with regard to age and body weight. All the animals were dewormed before the commencement of the experiment and maintained under similar managemental conditions of the farm during the experimental period of 210 days.

Experimental Diets

The piglings were maintained on two planes of feeding with respect to crude protein (CP) as follows:

A. Treatment I – ICAR recommended Level of crude protein

T1 → G1 – 6 indigenous piglings
T1 → G2 – 6 exotic piglings
T1 → G3 – 6 Crossbred piglings

B. Treatment II – A Low Plane (LP) of 10 per cent less of crude protein with reference to ICAR level.

T2 → G1 – 6 indigenous piglings
T2 → G2 – 6 exotic piglings
T2 → G3 - 6 Crossbred piglings

All the pigs were fed iso - caloric ration as per ICAR recommendations.

The cost of production from weaning to slaughter was calculated in all the treatment groups with assumptions that feed represented 75 per cent of the total cost of production. The data were statistically analysed as per the method described by Snedecor and Cochran (1994).

RESULTS AND DISCUSSION

Calculation of cost of production per kg of live body weight depends upon several factors like total feed intake, feed cost and feed conversion efficiency and total body weight gain from weaning to seven months of age. The cost of production per kg of live weight of pigs fed with treatment ration I and II are presented in table I. It can be seen from table I that the cost of production per kg of live body weight in Large White Yorkshire, Crossbreds and Desi pigs were Rs.36.36, Rs.49.44 and Rs.50.12 respectively in treatment group I. In treatment group II, the cost of production per kg of live body weight of the same breeds was Rs.37.86, Rs.46.52 and Rs.53.70 respectively.

The cost of production per kg of live body weight is lower for Large White Yorkshire followed by Crossbred and Desi pigs respectively. The result obtained in the study is in agreement with Mathew (1997) and Suraj (2000). Large White Yorkshire pigs performed better in growth rate, feed conversion efficiency and carcass traits and may be recommended for large and modern commercial piggery units. But the cost of production per kg of live body weight is lower for cross bred pigs maintained on 10 per cent less crude protein than ICAR ration. So, for the farmer with limited resources, rearing of cross bred pigs are affordable.

Table I: Cost of Production Per kg Live Weight of Large White Yorkshire, Crossbred and Desi Pigs Fed with Two Different Rations

Observation	Treatment I (ICAR)			Treatment II (10% less ICAR)		
	Large White Yorkshire	Crossbred	Desi	Large White Yorkshire	Crossbred	Desi
Number of animals	6	6	6	6	6	6
Total initial body weight (kg)	53.5	49	39	53	48	38.7
Total final body weight (kg)	483.5	373	282	434	354	237.3
Total body weight gain (kg)	430	324	243	381	306	198.6
Total feed intake (kg)	1844.91	1933.65	1482.21	1785.33	1789.47	1384.11
Total feed cost (Rs)	13218.45	13859.17	10624.55	12344.23	12376.59	9579.15
Cost of feed per kg (Total feed cost/total feed intake)	7.16	7.16	7.16	6.91	6.91	6.91
Feed conversion efficiency						
Cost of production on feed basis (Rs.) (FCR× Cost of feed/kg	3.81	5.18	5.25	4.11	5.05	5.83
Cost of production/kg live body weight (Rs.)*	27.27	37.08	37.59	28.40	34.89	40.28
	36.36	49.44	50.12	37.86	46.52	53.70
Overall treatment mean	45.30			46.02		

**- Under the assumption that cost of feed accounts for about 75 per cent of total cost of production in pigs (Joseph Mathew, 1997)*

Optimum feeding and manage mental conditions are needed for full exploitation of the growth potential of Large White Yorkshire. The study shows that in all aspects of growth the Large White Yorkshire outperform the Desi and the crossbreds between Large White Yorkshire and Desi. Feed conversion ratio was also better in Large White Yorkshire followed by Crossbred and Desi in that order. Considering these, in any commercial operation one should prefer the Large White Yorkshire or similar breeds.

Crossbred pigs have their relevance only in extensive pig farming of the type seen in Indian villages where there is very adverse environmental conditions and inferior feeding conditions. In such environments pure exotic breeds are unlikely to perform well. Desi have proven their ability to perform under such conditions. If the superiority of the crossbred over Desi pigs observed under experimental conditions can be replicated under the harsh village conditions, this may enhance pig production through the extensive village system

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