

Original Research Article

Performance of Different Genetic Groups of Pigs Maintained Under AICRP on Pig

Ravindra Kumar*, Banani Mandal, Nandani Kumari and Nishant Patel

Ranchi Veterinary College, Birsa Agricultural University, Kanke, Ranchi, Jharkhand, India

*Corresponding author

ABSTRACT

Swine production as an industry has gained momentum in the last few decades and is increasing day by day. Crossbreeding of indigenous pig with exotic is one of our objectives to upgrade our indigenous pig to some extent. The present investigation was carried out on thirty sows and approx 550 piglets each of two different genetic groups of pigs viz. Jharsukand 75% Hampshire maintained at Pig Breeding farm of Ranchi Veterinary College, Birsa Agricultural University, Ranchi (Jharkhand). Comparative growth and reproductive performance of “Jharsuk” and 75% Hampshire pigs were studied. Growth performance of Jharsuk Pig (crossbred variety with 50% exotic inheritance) was observed to be significantly higher as compared to 75% Hampshire during most of the period under study. However no significant difference was observed for reproductive performance between two genetic groups.

Keywords

Swine production, AICRP on Pig, meat source

Introduction

Swine production as an industry has gained momentum in the last few decades and is increasing day by day. One of the most sought after livestock in eastern and north eastern region of India, it is now being relished as cheapest meat source and preferred as choicest profession at Pan-India level. Pigs are one of the most prolific amongst all the domestic animals with 6-12 litters. The trends shows that the major share of the pig population is indigenous pigs, the level of population was almost steady from 1992 census. However crossbred pigs were 14% in 1992 and reached to 23.86% in 2012. Due to the cheap and easy availability of pig meat, and the deficit between daily meat requirement and availability, the farmers need to be encouraged to keep cross bred swine for greater profitability as well.

In the most recent decade, the population of swine has declined to approximately 12 million head from a high of 14 million in 2003, as indicated by the 17th Livestock Census of India. Industry sources suggest that this decline may be due to animal disease outbreaks. Hence, livestock breeders and geneticists now focus attention towards proper utilization of disease resistance aspect of our live-stocks. 75% Hampshire and T&D are well known for their good performance records due to hybrid vigour as well as good adaptability due to 25% and 50% inheritance of Desi breeds respectively. Keeping these points in view the current study was carried with few important objectives to observe the pre-weaning and post weaning important growth traits as well as the reproductive traits of T&D and 75%

Hampshire for their adaptability and performance and to compare and see their combining ability w.r.t. these traits.

Materials and Methods

The present investigation was carried out on thirty sows and approx 550 piglets each of two different genetic groups of pigs viz. T&D and 75% Hampshire maintained at Pig Breeding farm of Ranchi Veterinary College, Birsa Agricultural University, Ranchi (Jharkhand). The data for the present investigation were obtained from the pigs of two genetic groups spread over a period of about five years from 2012 to 2017. The observations were recorded from history-cum-pedigree sheet of the pig farm. The above recorded data were also analyzed for different economic traits. Sows of different groups were kept in a separate pucca pens having asbestos roof attached with a fenced pucca open running space under uniform housing and management conditions. The sows were supplied with paddy straw particularly during winter season as a bedding material to protect against extreme cold effects. In the summer months occasional sprinkling of water on the animals was practiced during hot hours of the day.

Results and Discussion

Comparative growth performance of “T&D” and 75% Hampshire pigs were studied. Average body weight at birth, 6th and 8th week of age was observed to be higher in 75% Hampshire (1.36±0.02, 6.96±0.11 and 10.08±0.47 Kg) pigs in comparison to “T&D” (1.20±0.01, 6.73±0.10 and 10.08±0.47 Kg) respectively. Pre-weaning body weight of T&D piglets differed significantly from 75% Hampshire at all ages except at 6th and 8th week. This may be due to effect of genetic group on pre-

weaning body weight. Table 1 showed significantly higher weight in 75% Hampshire in comparison to T&D in 0 day 2nd week and 4th week which is similar to finding of Mukhopadhyay *et al.*, (1991) who noticed lower body weight at birth and 4th week of T&D piglets than other genetic group. The possible explanation of lower pre-weaning body weight of T&D piglets is due to its higher litter size as there is significant effect of litter size at birth on pre-weaning body weight as suggested by Roychoudhary and Bhatia (1980) in Landrace; Sharma (1989) in Large white Yorkshire, desi and their half breeds and Mukhopadhaya *et al.*, (1991) in Landrace, Tamworth and their cross breeds. This is due to piglets in larger litter size group received comparatively lower quantity of milk than that of smaller litter size group leading to lower weight gain. However post weaning body weight at 6th and 8th months of age was observed to be higher in T&D than 75% Hampshire. Body weights at 6th and 8th months of age were recorded in “T&D” (42.25± 2.01 and 73.25 ± 2.64 Kg) and 75% Hampshire (36.13 ± 1.65 and 62.21± 2.37 Kg), respectively. Post-weaning body weight of T&D piglets did not differ significantly from 75% Hampshire except at 6th and 8th month. Table 2 shows that higher body weight of T&D piglets at 6th and 8th month in comparison 75% Hampshire which shows that T&D breed grows at faster rate at later ages in comparison to 75% Hampshire under same managerial condition.

The higher body weight of T&D piglets is an indication of better combining ability of between genes of desi with Tamworth as compare to Hampshire for faster growth rate during the period. Non-significant effect of genetic group on most of the post-weaning body weight in Landrace, Large white Yorkshire and half breeds observed by Bardoli & Raina (1984).

Table.1 Pre-weaning Body weight (kg) of piglets of different genetic groups at various ages

Age	T&D	75% Hampshire	Significance
0 day	1.20 ± 0.01 ^a (251)	1.36 ± 0.02 ^b (300)	**
2 week	3.12 ± 0.05 (240)	3.28 ± 0.05 (280)	*
4 weeks	4.77 ± 0.07(235)	5.03 ± 0.08 (275)	*
6 weeks	6.73 ± 0.10 (214)	6.96 ± 0.11 (261)	NS
8 week	9.62 ± 0.17 (212)	10.08 ± 0.47 (229)	NS

^{abc} Means bearing different superscripts in a row differ significantly from each other (**P<0.01), NS= Non-significant. Figure in parenthesis indicate no. of observations.

Table.2 Post-weaning Body weight (kg) of different genetic groups of pigs at various ages

Age	T&D	75% Hampshire	Significance
3 months	14.68 ± 0.50 (15)	15.01 ± 0.72(30)	NS
4 months	21.30 ± 0.82 (18)	20.05 ± 1.07 (30)	NS
5 months	30.67 ± 1.39 (18)	27.14 ± 1.54 (34)	NS
6 months	42.25± 2.01 (16)	36.13 ± 1.65 (26)	*
7 months	54.61 ± 2.31 ^a (14)	51.64 ± 2.01 ^b (22)	NS
8 months	73.25 ± 2.64 ^a (12)	62.21± 2.37 ^b (14)	**
9 months	82.00 ± 2.15 ^a (08)	77.25 ± 2.82 ^b (08)	NS
10 months	90.50 ± 1.38 ^a (10)		

^{abc} Means bearing different superscripts in a row differ significantly from each other (*P<0.05, **P<0.01), NS= Non-significant. Figure in parenthesis indicate no. of observations.

Table.3 Reproductive performance of different genetic groups of pigs maintained under different projects

Reproductive traits	T&D	75% Hampshire	Significance
Litter size at birth	7.73 ± 0.32 (22)	7.12 ± 0.32 (26)	NS
Litter size at weaning	7.30 ± 0.32 (27)	7.08 ± 0.32 (26)	NS
Litter weight at birth (Kg)	10.52 ± 2.04 (30)	11.04 ± 2.47 (32)	NS
Litter weight at weaning (Kg)	66.60 ± 2.98 (30)	60.38 ± 3.15(32)	NS

NS= Non-significant. Figure in parenthesis indicate no. of observations.

Table.4 Average sow performance of different genetic groups of pigs

Reproductive traits	AICRP (T&D)	AICRP (75%)	Significance
Litter size at birth	7.77±0.32(24)	6.69±0.17 (19)	**
Litter size at weaning	7.44±0.36 (24)	6.38±0.16 (19)	**
Litter weight at birth (Kg)	8.65±0.33 (24)	8.66±0.36 (19)	NS
Litter weight at weaning (Kg)	59.39±2.64(24)	51.60±2.44 (19)	NS

NS= Non-significant. Figure in parenthesis indicate no. of observations.

Comparative reproductive performance of T&D and 75% Hampshire pigs were studied. No significant difference were observed between these two genetic groups which is contrary to the findings of Goonewardene *et al.*, (1984), Singh *et al.*, (1990), Kumar *et al.*, (1990) and Mukhopadhaya *et al.*, (1992) as they found significant effect of genetic group on reproductive traits in pigs. However, slightly better reproductive performances (LSB, LSW and LWW) were noticed in “T&D” pigs than 75% Hampshire. Litter size at birth, Litter size at weaning and Litter weight at birth and Litter weight at weaning for T&D and 75% Hampshire were observed to be 7.73 ± 0.32 , 7.30 ± 0.32 , 10.52 ± 2.04 Kg, 66.60 ± 2.98 Kg and 7.12 ± 0.32 , 7.08 ± 0.32 , 11.04 ± 2.47 Kg, 60.38 ± 3.15 Kg, respectively.

On studying average sow performance of T&D and 75% Hampshire it was found T&D sows has higher litter size at birth and litter size at weaning in comparison to 75% Hampshire which shows that genetic group has significant effect on litter size at birth and litter size at weaning which is similar to the finding of Goonewardene *et al.*, (1984), Singh *et al.*, (1990), Kumar *et al.*, (1990) and Mukhopadhaya *et al.*, (1992) however there was no significant difference between two genetic groups in traits like litter weight at birth and litter weight at weaning.

The higher litter size at birth and weaning of T&D piglets are indicative of better combining ability of between genes of desi with Tamworth as compare to Hampshire for these reproductive traits also. It can be concluded that performance of T&D is better than upgraded pigs under similar managerial condition. Therefore T&D pigs have great scope to improve the socio-economic status of rural farming community in compare to upgraded pigs.

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