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Performance on individual traits of Tamil Nadu desi pig under intensive system of rearing

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Abstract

Tamil Nadu *desi* breed of pig is having very minimal details about its production performance. Hence, the present study was conducted on individual production traits of Tamil Nadu *desi* pigs under an organized farm condition. Records of birth weight, weaning weight and pre-weaning average daily gain was collected from organized farm and utilized for statistical analysis. The overall average birth weight, weaning weight and pre weaning average daily gain were 0.66 ± 0.014 kg, 4.855 ± 0.164 kg and 59.546 ± 2.384 g respectively. Highest significant was encountered on period of birth and season of birth in all the individual traits and no significant effect was noticed on sex of the individuals.

Keywords: Desi pig, production traits, intensive system

Introduction

Rearing of pig is one of the most important occupation of rural poor and socio economically weaker section peoples of India. In India, exotic and native pig population was decreased to 22.76 and 8.06 percent respectively because, the scenario of piggery sector is not so popular. Even though there are so many exotic breeds available, tribal peoples are more interested in rearing *desi* than exotic one because of most suitability in tribal areas. Exotic breeds needed specific housing system, scientific feeding methods but in *desi* pigs, they are not required much. Even though low production performance is noticed among *desi* than exotic, health issues and mortality percent is too low in *desi* pigs especially in semi intensive or extensive system of rearing.

The native pig population is decreasing gradually due to lack of planned breeding programme, knowledge in scientific pig rearing but, despite decreasing trends in populations these native pigs still represent a valuable component of local genetic resources (Subalini *et al.*, 2010) [12]. Throughout India, indigenous pig breeds are in condition of extinction and need immediate conservation programme to save the indigenous pig germplasm from extinction (De *et al.*, 2014 [2]; Hmingthanzuala *et al.*, 2016 [5]). Compared to exotic pigs, complete investigation on production and reproduction performance of *desi* pigs under different rearing system and different environment is not much reported (Borkotoky *et al.*, 2014) [1]. The evaluation of production parameters of such *desi* pigs is useful in the selection of breeding stock and its end with improvement of production performances. The present study is framed to evaluate the production performance of indigenous or *desi* pigs of Tamil Nadu under intensive system of rearing in an organized farm.

Materials and Methods

The present study data was obtained from Pig Breeding Unit, Post Graduate Research Institute in Animal Sciences, TANUVAS, Kattupakkam, Chengalpattu, Tamil Nadu for the period of 2018 to 2022. All the pigs were reared under intensive system with normal feeding, housing, breeding and other management practices. Birth weight and weaning weight was recorded on day old and day 90 respectively. In this study, the individual traits such as birth weight (kg), weaning weight (kg) and pre weaning average daily gain (gm) were collected from farm registers and analysed. The data was classified according to period, season and sex of the animals. The least squares analysis of variance technique (Harvey 1990) [4] was carried out to study the effect of sex, season of birth and period of birth on production performance. Duncan's Multiple Range Test (DMRT) as modified by Kramer (1957) [7] was done for pairwise comparisons of means wherever the significant difference among different levels of effects were obtained. The analysis was performed by using SPSS software version 23.

Result and Discussion

The *desi* pig population are spread all over Tamil Nadu region, but they are reared under scientific farming methods only in Pig Breeding Unit of Post Graduate Research Institute in Animal Sciences, Kattupakkam. The least-squares mean of Tamil Nadu *desi* pig individual traits were depicted in Table

1. The overall mean birth weight, weaning weight and pre weaning average daily gain were found to be 0.66 ± 0.014 kg, 4.855 ± 0.164 kg and 59.546 ± 2.384 g respectively. Comparatively highest birth weight was noticed in male piglets, whereas female pigs showed highest weaning weight and pre-weaning average daily gain.

Table 1: Least square means for birth weight, weaning weight and pre weaning average daily gain in *desi* pigs

Effect	Birth weight (kg)		Weaning weight (kg)		Pre weaning average daily gain (g)	
	N	Mean±SE	N	Mean±SE	N	Mean±SE
Overall mean	128	0.66±0.014	111	4.855±0.164	111	59.546±2.384
Period of birth	**		**		**	
2018 -2019	18	0.412±0.035	11	3.859±0.471 ^b	11	44.814±6.861 ^a
2019-2020	54	0.784±0.027 ^b	52	5.918±0.316 ^a	52	81.847±4.598 ^a
2020-2021	25	0.722±0.041 ^{ab}	23	6.141±0.477 ^b	23	73.73±6.953 ^a
2021-2022	31	0.724±0.029 ^a	25	3.501±0.321	25	37.794±4.676 ^b
Season of birth	**		**		**	
Summer	39	0.47±0.038 ^b	39	5.431±0.431 ^a	39	43.33±6.283 ^b
South west monsoon	45	0.826±0.023 ^a	36	5.633±0.265 ^b	36	80.43±3.865 ^a
Winter	44	0.686±0.031 ^a	36	3.499±0.382	36	54.879±5.566 ^b
Sex	NS		NS		NS	
Male	59	0.662±0.018	50	4.792±0.222	50	57.721±3.23
Female	69	0.659±0.017	61	4.918±0.198	61	61.371±2.89

SE = Standard errors; N = number of observations; **= Highly significant; NS= Not significant

Birth weight

The period of birth and season of birth had highly significant ($p < 0.01$) and sex of the individual had no significant effect on birth weight. Significantly highest birth weight was noticed on season of south west monsoon and period of 2020. Similar individual birth weight was reported in kerala *desi* pigs by Mathew *et al.*, 1999^[9] and in Jharkhand local pigs by Pandey and Singh, 2010^[10]. However, in contrast to the present findings higher birth weight of Andaman local pigs was recorded by Kundu *et al.*, 2020^[8]. Comparatively higher birth weight of *desi* pigs than the present findings were reported (Pandey *et al.*, 1997^[11]; Kalita *et al.*, 2001^[6]). Significantly lower birth weight in the piglets born during summer than those of winter might be due to influence of climatic condition of different season during pregnancy period of sows. The result indicate that extreme weather during the pregnancy period of sows had influence on birth weight of piglets. Birth weight of the individuals had influenced by season of birth (Pandey and Singh, 2010)^[10].

Weaning weight

The weaning weight had highly significant effect ($p < 0.01$) in period of birth and season of birth than sex. The highest weaning weight was noticed significantly in the period 2021 and lowest weaning weight was noticed in winter season. Comparing the findings in this study, slightly higher weaning weight was reported in kerala *desi* pigs by Mathew *et al.*, 1999^[9]. Nevertheless, in contrast to the present findings wide range of higher weaning weight of Andaman local pigs was recorded by Kundu *et al.*, 2020^[8] and Deo *et al.* (1992)^[3] and Pandey *et al.* (1997)^[11] in other indigenous *desi* pigs. In the present findings, lowest weaning weight was observed significantly in piglets born during winter season. It may be due to humid stress conditions. Likewise our study, Pandey and Singh, 2010^[10] concluded that the season of birth influence the weaning weight of piglets.

Pre-weaning average daily gain

The period and season of birth were found to have high significant effects ($p < 0.01$) and sex have no significant effect

on pre-weaning average daily gain. The overall highest and lowest pre-weaning average daily gain was noticed significantly in 2020 and 2021 period respectively. Mathew *et al.*, 1999^[9] reported pre weaning average daily gain of Kerala *desi* pigs almost similar to this study.

Conclusion

A study was conducted to know the production performance of Tamil Nadu *desi* pigs under farm condition. The results obtained provides a valuable database on the individual traits of our indigenous pigs for pertinent use in their genetic improvement.

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