

## COMPARATIVE GROWTH PERFORMANCE OF NELLORE BROWN SHEEP UNDER FARM (SEMI-INTENSIVE) AND FIELD (EXTENSIVE) CONDITIONS

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**Abstract:** Data was collected on body weights of Nellore Brown sheep during the period of 2010-15 maintained under farm and also in field condition. The overall performance of Nellore Brown sheep is  $2.79 \pm 0.02$ ,  $12.62 \pm 0.64$ ,  $16.45 \pm 0.26$ ,  $19.55 \pm 0.36$  and  $23.56 \pm 0.42$  kg, respectively at birth, 3, 6, 9 and 12 months of age. System of rearing and sex of lamb had highly significant ( $P \leq 0.01$ ) influence on body weights at all ages studied. Least square means for body weights in semi-intensive system are  $2.86 \pm 0.01$ ,  $13.09 \pm 0.74$ ,  $17.42 \pm 0.15$ ,  $19.55 \pm 0.36$  and  $24.67 \pm 0.20$  and in extensive system are  $2.72 \pm 0.03$ ,  $12.15 \pm 0.54$ ,  $15.48 \pm 0.36$ ,  $18.75 \pm 0.54$  and  $22.45 \pm 0.64$  kg, respectively at birth, 3, 6, 9 and 12 months of age.

**Keywords:** Nellore brownsheep, Systems of rearing, Comparative growth.

### Introduction

Sheep are efficient converters of unutilized poor quality grass and crop residues into meat and skin. Sheep rearing is a major source of income for landless labour, small and marginal farmers of semi-arid regions in Andhra Pradesh.

Nellore sheep is the tallest mutton breed of sheep in India which is widely distributed in Nellore district and neighboring areas of Prakasam and Kadapa districts of Andhra Pradesh. In Nellore Sheep three Strains are distinguished primarily on the basis of their coat colour. Nellore Jodipi is white in colour on the dorsal surface of body with black colour under the belly. Nellore pallais completely white in colour. Nellore brown is completely brown in colour with little hair except at brisket, withers and breech regions on the body. Information is scanty on this breed about growth. Hence, an attempt was made to study the comparative growth performance of Nellore sheep of Brown strain under organized farm and field conditions.

## Materials and Methods

The experiment is carried out at Livestock Research Station, Siddarampuram, Andhra Pradesh, India. The institute maintains a flock of 200- 250 breedable ewes. Data was recorded lambs born during 2010-11 to 2015-16. Lambs were weaned at the age of 3 months and maintained under a semi-intensive system. They are fed with 1% concentrate on its body weight and 8 hrs grazing with ad libitum water. Where as in field condition data was collected at Krishnamreddypalli village flocks which are maintained under extensive system of rearing with provision of 8-10 hrs grazing with ad libitum water.

The data recorded on body weights at birth, 3, 6, 9 and 12 months of age were analyzed using least squares technique (Harvey, 1990) to study the effect of sex and system of rearing on body weights with the following statistical model.

$$Y_{ijk} = \mu + S y_i + S e_j + e_{ijk}$$

Where,

$Y_{ijk}$  = Observation on  $k^{\text{th}}$  individual belonging to  $j^{\text{th}}$  sex and  $i^{\text{th}}$  system of rearing

$\mu$  = Overall mean

$S y_i$  = Effect of  $i^{\text{th}}$  system of rearing ( $i = 1$  and  $2$ : i.e., semi-intensive and extensive)

$S e_j$  = Effect of  $j^{\text{th}}$  sex ( $j = 1$  and  $2$ : i.e., male and female)

$e_{ijk}$  = Random error associated with  $k^{\text{th}}$  individual and assumed to be normally and independently distributed with mean 0 and variance  $\sigma^2 e$ .

## Results and Discussion

The least square means of body weights of lambs at different ages and effect of system of rearing and sex of lambs are presented in Table 1. The overall least square means for birth, 3, 6, 9 and 12 months of age are  $2.79 \pm 0.02$ ,  $12.62 \pm 0.64$ ,  $16.45 \pm 0.26$ ,  $19.55 \pm 0.36$  and  $23.56 \pm 0.42$  kg, respectively. The values are markedly higher than those reported by Balasubramanyam and Kumarasamy (2011) in Madras Red sheep, Lalit *et al* (2016) in Harnali sheep and slightly lower than reported by Rao *et al.* (2004) in Nellore Jodipi sheep.

System of rearing had highly significant ( $P \leq 0.01$ ) influence on body weight sat all ages studied. Least square means for body weights in semi-intensive system are  $2.86 \pm 0.01$ ,  $13.09 \pm 0.74$ ,  $17.42 \pm 0.15$ ,  $19.55 \pm 0.36$  and  $24.67 \pm 0.20$  and in extensive system are  $2.72 \pm 0.03$ ,  $12.15 \pm 0.54$ ,  $15.48 \pm 0.36$ ,  $18.75 \pm 0.54$  and  $22.45 \pm 0.64$  kg, respectively. Growth performance in semi-intensive system of rearing is higher than extensive system of rearing, which might be due to the supplementation of concentrates in semi-intensive system. This result was in agreement with the finding of Bharambe and Burte (2012) in Deccani lambs.

Sex of the lamb had highly significant ( $P \leq 0.01$ ) influence on body weight from birth to 12 months of age. Male lambs weighed higher than their female counter parts at all ages in semi-intensive system and extensive system of rearing, due to anabolic effect of hormones (Hafeez, 1993). Similar significant differences between sexes were reported by Ganesan *et al.* (2013) in Madras Red sheep and Ekambaram *et al.* (2013) Nellore sheep.

### **Conclusion**

From the present study it can be concluded that the system of rearing had highly significant effect on body weights at all ages studied. Due to the concentrates supplementation in semi-intensive system, tend to more intake of dry matter and resulted in the superior growth performance than extensive system of rearing. Both systems of rearing males weighed higher than females at all ages studied due to anabolic effect of hormones.

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<b>Table 1.</b> Least square means of Body weight (kg) of Nellore Brown sheep					
Particulars	Birth weight	Weaning Weight	6- month weight	9- month Weigh	12- month Weigh
Overall mean	2.79±0.02	12.62±0.64	16.45±0.26	19.55±0.36	23.56±0.42
<b>System of Rearing</b>	**	**	**	**	**
Semi-intensive	2.86±0.01	13.09±0.74	17.42±0.15	20.35±0.14	24.67±0.20
<b>Sex</b>	**	**	**	**	**
Male	2.95±0.01	13.96±0.0.76	18.63±0.11	22.68±0.12	27.98±0.12
Female	2.77±0.01	12.22±0.0.72	16.21±0.19	18.02±0.16	21.36±0.27
Extensive	2.72±0.03	12.15±0.54	15.48±0.36	18.75±0.54	22.45±0.64
<b>Sex</b>	**	**	**	**	**
Male	2.79±0.02	13.05±0.61	17.02±0.35	20.69±0.58	25.09±0.67
Female	2.65±0.03	11.25±0.47	13.94±0.37	16.81±0.50	19.81±0.61

\*Significant at ( $P \leq 0.05$ ), \*\* significant at ( $P \leq 0.01$ )