

## GROWTH PERFORMANCE OF NELLORE SYNTHETIC BREED OF SHEEP

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### ABSTRACT

A synthetic breed named as "Nellore Synthetic" was evolved at Livestock Research Station, Palamaner, Andhra Pradesh was developed by crossing of the Nellore sheep of Andhra Pradesh with the exotic breeds of Dorset and Suffolk by stabilizing the exotic inheritance at 50%. Data on various body weights were subjected to least square analysis of variance by using fixed effect model to estimate the effect of various non genetic factors. Data on various body weights were subjected to least square analysis of variance by using fixed effect model to estimate the effect of various non genetic factors. Overall mean birth weight of Nellore sheep at birth, weaning, 6, 9 and 12 months of age were  $3.40 \pm 0.02$  kg,  $13.35 \pm 0.07$  kg,  $17.78 \pm 0.09$  kg,  $20.03 \pm 0.11$  kg and  $22.47 \pm 0.12$  kg respectively. All body weights were significantly ( $P < 0.01$ ) influenced by season of birth, year and sex of lamb. Lambs born during off season were significantly ( $P < 0.01$ ) heavier than the lambs born during main season. The results of present investigations indicated that, body weights at different ages in Nellore sheep were significantly ( $P < 0.01$ ) influenced by year, season of birth and sex and hence selection based on such traits might lead to enhancement of overall improvement of production as well as growth traits in Nellore synthetic sheep breed.

**Key Words:** Birth weight, Body weights, Nellore synthetic sheep, Season, Sex.

Cross breeding in sheep was undertaken under the All India Coordinated Research Project on sheep breeding for mutton units located in different region of the country for the genetic improvement of wool, meat and milk. A synthetic breed named as "Nellore Synthetic" was evolved at Livestock Research Station, Palamaner, Andhra Pradesh was developed by crossing of the Nellore sheep of Andhra Pradesh with the exotic breeds of Dorset and Suffolk by stabilizing the exotic inheritance at 50%. The synthetic strains showed superiority in feed lot gains, efficiency of feed conversion and to a small extent in dressing percentage on live weight basis. However the information on the growth performance of the Nellore synthetic breed is very scanty. Hence an attempt in made to study the growth performance of Nellore synthetic at various ages.

The data on body weights at birth, 3, 6, 9 and 12 months were recorded during the 1993-94 to

1996-97 at the Network Programme on Sheep Improvement at Livestock Research Station Palamaner was utilized for the study. The sheep were managed under semi intensive system at Livestock Research Station, Palamaner The data were subjected to least square analysis by using fixed effect model to estimate the effect of various non genetic factors. The data were classified into year, season, and sex. The year was divided in two seasons, Main season (June- July) and offseason (March- April). The least square means of body weight at birth, weaning, 6, 9 and 12 months of age are presented in the Table 1.

The overall mean birth weight of the Nellore synthetic lambs was  $3.40 \pm 0.02$  kg which is higher compared to the values reported by Singh *et al*<sup>4</sup>. The average birth weight of the male lambs ( $3.56 \pm 0.06$  kg) was higher than the female lamb ( $3.22 \pm 0.06$  kg) and this observation was in confirmation with reports of Reddy<sup>3</sup> and Charyulu and Munirathnam<sup>1</sup>. Lamb weight at birth was significantly ( $P < 0.01$ )

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influenced by year, season of birth and sex of lamb. Charyulu and Munirathnam<sup>1</sup> and Reddy<sup>3</sup> also reported significant effect of year on birth weight. Lambs born during off season ( $3.54 \pm 0.11$  kg) were significantly ( $P < 0.01$ ) heavier than the lambs born during main season ( $3.37 \pm 0.05$  kg), which might be due to abundant availability of fodder to pregnant ewes in grazing after the onset of monsoon.

The average weaning weight of Nellore synthetic lambs in the present study was  $13.35 \pm 0.07$  kg and it was significantly ( $P < 0.01$ ) influenced by year of birth, sex and season of lambing. Male lambs attained significantly higher weight ( $13.56 \pm 0.06$  kg) than females ( $13.01 \pm 0.35$  kg) at weaning age, which is in agreement with findings of<sup>1,3</sup>, however a higher value of  $16.29 \pm 0.29$  kg was reported<sup>4</sup>.

The overall mean body weight at 6 months of age was  $17.78 \pm 0.09$  kg, which is comparable with the value reported by Charyulu and Munirathnam<sup>1</sup>. A higher weight of  $22.60 \pm 0.32$  kg was reported by

Singh *et al*<sup>4</sup> might be due to the feed lot experiment. The weight at Six months of age was significantly influenced by the year of birth, sex and season of birth. Charyulu and Munirathnam<sup>1</sup> also reported significant effect of sex and season of birth.

The mean body weight at 9 months of age was  $20.03 \pm 0.11$  kg. The mean body weight of the males ( $21.51 \pm 0.94$  kg) was higher than the female ( $19.13 \pm 0.50$  kg). The main season recorded weight was  $19.79 \pm 0.5$  kg is lower compared to the off season body weight of  $20.88 \pm 1.28$  kg. The 9 months body weight of Nellore synthetic were significantly influenced by year of birth, sex and season.

The average 12 months body weight was  $22.47 \pm 0.12$  kg was significantly influenced by the year, sex and season of birth. The significant influence of season of birth continued till 9 months of age and also animals which are born during the off season were significantly heavier.

**Table 1. Mean Body weight of Nellore Synthetic breed at various ages**

Parameters	Body weights at different ages in Nellore sheep				
	Birth weight (kg)	Weaning weight (kg)	6 month weight (kg)	9 month weight (kg)	12 month weight (kg)
Population mean	3.40±0.02 (196)	13.35 ± 0.07 (178)	17.78± 0.09 (102)	20.03 ± 0.11 (79)	22.47 ± 0.12 (60)
1993-94	3.28± 0.14 (28)	14.30± 0.68 (26)	20.78± 1.46 (9)	24.23± 1.57 (9)	27.5± 1.60 (8)
1994-95	3.43±0.10 (40)	15.26± 0.52 (38)	19.40± 0.82 (21)	20.89± 1.05 (19)	23.39± 1.07 (18)
1995-96	3.58 ± 0.08 (52)	14.15± 0.52 (43)	17.17± 0.51 (30)	18.87± 0.60 (27)	20.17± 0.68 (18)
1996 -97	3.42 ± 0.12 (25)	11.84± 0.73 (24)	16.79± 0.84 ( 24)	19.04 ± 0.96 ( 22)	21.54± 0.99 (15)
Main season	3.37 ± 0.05 (166)	13.14±0.29 (151)	17.62±0.41 (78)	19.79± 0.51 (62)	22.50± 0.65 (47)
Off season	3.54 ± 0.11 (30)	14.51± 0.75 (27)	18.29 ± 0.86 (24)	20.88± 1.28 (17)	22.34± 1.24 (13)
Males	3.56± 0.06 (100)	13.67± 0.41 (91)	18.53± 0.64 (45)	21.51± 0.94 (30)	24.56± 1.24 (16)
Females	3.22 ± 0.06 (96)	13.01± 0.35 (87)	17.18± 0.42 (57)	19.13± 0.50 (49)	21.70± 0.61 (44)

Figures within parentheses denote number of observations.

## CONCLUSION

Nellore synthetic breed was evolved by crossing of the Nellore breed with the exotic breeds of Dorset and Suffolk with 50% level of exotic inheritance. An attempt was made to study the performance of the

Nellore synthetics at various stages of growth under farm conditions. Non-genetic factors significantly influenced the body weight at birth, 3, 6, 9 and 12 month of age, except for effect of season of birth on 12 months body weight.

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