

Performance of Madras Red Sheep in Kancheepuram District

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ABSTRACT

The overall performance of Madras Red sheep reared under field condition recorded during 2007-08. The mean body weight of ewes at breeding was 28.11 ± 0.49 kg and lambing percent was 85.61. The overall birth weight, 3-month, 6-month, 9-month and 12-month body weights were 2.82 ± 0.004 , 10.96 ± 0.023 , 15.24 ± 0.022 , 19.36 ± 0.070 and 22.48 ± 0.131 kg respectively. The average daily weight gains during 0-3 months, 3-6 months, 6-9 months and 9-12 months were 90.38 ± 0.249 , 47.68 ± 0.212 , 46.69 ± 0.748 and 32.76 ± 1.060 g respectively. The body weight except at birth in Madras Red sheep showed a significant difference between the seasons for the year 2007-2008. Sex had significant influence on body weights except at 9-months of age. Centre had a highly significant influence on birth, 3-month, 6-month, 9-month and 12-month body weight.

Key Words: Madras Red Sheep, Performance, Average daily weight gain, body weight, Farmers holdings

INTRODUCTION

Madras Red Sheep is a medium sized hairy breed of Tamilnadu. It is a meat type breed mainly distributed in northern districts of Tamilnadu. The present study is to assess the growth and reproductive performance of Madras Red Sheep.

MATERIALS AND METHODS

The data related to growth and reproductive performance was collected during the period of 2007-08 from 16 villages in and around Kancheepuram district covered under Network Project on Sheep Improvement. Under this study a total of 6869 sheep were covered. The whole year was divided into two lambing seasons, October to March (season 1) and April to September (season 2). The data was analysed by mixed model least square maximum likelihood programme (Harvey, 1990).

RESULTS AND DISCUSSION

The overall birth weight, 3-month, 6-month, 9-month and 12-month body weight were 2.82 ± 0.003 , 10.96 ± 0.023 , 15.24 ± 0.022 , 19.36 ± 0.070 and 22.48 ± 0.131 kg respectively (Table 1) and were similar to the estimates reported by Balasubramanyam *et al.*, (2010) and Devendran *et al.*, (2009) in the same breed. The average daily weight gains during 0-3 months, 3-6 months, 6-9 months and 9-12 months were 90.38 ± 0.249 , 47.68 ± 0.212 , 46.69 ± 0.748 and 32.76 ± 1.060 g respectively (Table 2). The average daily weight gain was significant

for the pre-weaning and post- weaning gains between seasons. The body weight at all stages of growth except at birth in Madras Red sheep showed a significant difference between the seasons. Malik *et al.*, (1998) reported a seasonal variation for body weight at various stages of growth. Similar findings were also observed by many workers for various breeds (Nehra & Singh, 2006; Sivaiah and Rao, 1987; Singh *et al.*, 1987 and Sharma, 1989). Sex had significant influence on body weights except at 9-months of age (Table 1).

The males recorded higher body weights than females at all stages of growth. The average birth weight and 12-month weight of males were 2.89 ± 0.005 and 22.82 ± 0.26 kg respectively. The growth trait was significantly affected by sex of the lamb (Balasubramanyam *et al.*, 2010; Juma *et al.*, 1998; Sharma *et al.*, 1999). Similarly Sivakumar *et al.*, (2006) reported that the male lambs had significantly higher birth weight than females in Kattupakkam Red sheep and a higher birth weight of males and significant effect of sex was also reported by Sharma *et al.*, (1999) in Marlpura and Avikalin sheep and Viroji Rao *et al.*, (2004) in Nellore sheep. The sex factor had no significant effect on average daily weight gain of the animals. Snowden and Van Vleck (2003) also reported a non significant effect of sex on average daily body weight gain in Targhee sheep. On the other hand significant effect was observed by many workers (Shah & Khan, 2004; Mandal *et al.*, 2003).

Table 1. Least-squares means (\pm SE) of body weights (kg) of Madras Red sheep

Effects	Birth	3 - month	6 - month	9 - month	12- month
Overall mean	2.82 \pm 0.004 (2446)	10.96 \pm 0.023 (2420)	15.24 \pm 0.022 (2403)	19.36 \pm 0.070 (1307)	22.48 \pm 0.131 (1279)
Season	NS	**	**	**	**
October to March	2.82 \pm 0.004 (1817)	11.15 \pm 0.023 (1798)	15.38 \pm 0.023 (1785)	19.42 \pm 0.073 (973)	22.57 \pm 0.132 (961)
April to September	2.82 \pm 0.006 (629)	10.76 \pm 0.036 (622)	15.09 \pm 0.035 (618)	19.30 \pm 0.074 (334)	22.40 \pm 0.133 (318)
Sex	**	**	**	NS	**
Male	2.89 \pm 0.005 (1140)	11.02 \pm 0.029 (1125)	15.30 \pm 0.028 (1120)	19.39 \pm 0.137 (25)	22.82 \pm 0.26 (7)
Female	2.76 \pm 0.005 (1306)	10.90 \pm 0.028 (1295)	15.18 \pm 0.028 (1283)	19.32 \pm 0.026 (1282)	22.15 \pm 0.027 (1272)
Centre	**	**	**	**	**
I	2.84 ^a \pm 0.006 (879)	11.09 ^a \pm 0.03 (871)	15.15 ^b \pm 0.029 (871)	19.23 ^b \pm 0.074 (474)	22.46 ^{bc} \pm 0.132 (468)
II	2.81 ^b \pm 0.008 (394)	11.06 ^a \pm 0.044 (393)	15.21 ^{ab} \pm 0.043 (389)	19.26 ^b \pm 0.084 (203)	22.54 ^{ac} \pm 0.138 (203)
III	2.82 ^b \pm 0.005 (974)	10.92 ^b \pm 0.029 (964)	15.28 ^a \pm 0.028 (956)	19.40 ^a \pm 0.071 (530)	22.58 ^a \pm 0.131 (517)
IV	2.81 ^b \pm 0.011 (199)	10.76 ^c \pm 0.061 (192)	15.30 ^a \pm 0.060 (187)	19.54 ^a \pm 0.093 (100)	22.36 ^b \pm 0.148 (91)

Figures in parentheses indicate the number of observations; ** Significant ($P < 0.01$); * Significant ($P < 0.05$); NS -Not significant ($P > 0.05$).
 Means having different superscripts within the column differ significantly ($P < 0.05$)

Table 2. Average daily weight gain (g) of body weights of Madras Red sheep

Effects	0- 3 months	3- 6 months	6 - 9 months	9 - 12 months
Overall mean	90.38 ± 0.249 (2420)	47.68 ± 0.212 (2403)	46.69 ± 0.748 (1307)	32.76 ± 1.060 (1279)
Season	**	**	**	*
October to March	92.56 ± 0.251 (1798)	46.96 ± 0.213 (1785)	45.45 ± 0.771 (973)	33.21 ± 1.073 (961)
April to September	88.20 ± 0.389 (622)	48.39 ± 0.329 (618)	47.93 ± 0.794 (334)	32.30 ± 1.078 (318)
Sex	NS	NS	NS	NS
Male	90.34 ± 0.316 (1125)	47.82 ± 0.267 (1120)	47.13 ± 1.459 (25)	34.14 ± 2.101 (7)
Female	90.42 ± 0.304 (1295)	47.54 ± 0.259 (1283)	46.24 ± 0.279 (1282)	31.37 ± 0.218 (1272)
Centre	**	**	NS	**
I	90.58 ^a ± 0.322 (871)	45.43 ^c ± 0.271 (871)	46.43 ± 0.791 (474)	33.84 ^a ± 1.067 (468)
II	91.65 ^a ± 0.475 (393)	46.26 ^c ± 0.404 (389)	46.28 ± 0.893 (203)	34.36 ^a ± 1.119 (203)
III	88.98 ^b ± 0.310 (964)	48.55 ^b ± 0.268 (956)	46.34 ± 0.758 (530)	33.12 ^b ± 1.061 (517)
IV	88.32 ^c ± 0.662 (192)	50.47 ^a ± 0.564 (187)	47.71 ± 0.993 (100)	29.72 ^c ± 1.199 (91)

Figures in parentheses indicate the number of observations. ** Significant ($P < 0.01$); * Significant ($P < 0.05$); NS -Not significant ($P > 0.05$).

Means having different superscripts within the column differ significantly ($P < 0.05$)

Table 3. Reproductive performance

Centre	Number of Ewes available for breeding	Mean body weight of Ewes at breeding (kg)	Number of Ewes lambd in single	Total number of live births	Number of Ewes lambd twins	Lambing per cent
I	1016	27.56 ± 0.02	879	879	-	86.51
II	461	27.65 ± 0.04	394	394	-	85.46
III	1116	28.78 ± 0.05	974	974	-	87.28
IV	264	28.24 ± 0.04	199	199	-	75.37
Overall	2857	28.11 ± 0.49	2446	2446	-	85.61

Centre had a highly significant influence on birth 3-month, 6-month, 9-month and 12-month body weight during year 2007-2008. Also centre had highly significant influence on body weight gain during 0-3 month, 3-6 month, and 9-12 month for the year 2007-2008. The reason may be attributed to the grazing and management practices of the farmers at different locations in the district.

The overall mean body weight of ewes at breeding was 27.56 ± 0.02 kg and lambing per cent was 85.61 (Table 3). Tailor *et al.* (2008) reported that an overall lambing of 82.25% of the total breedable females in Sonadi sheep. Verma *et al.*, (2005) reported the lambing in Marwari sheep ranged from 70-80% whereas; Acharya (1982) reported 87% lambing in Marwari sheep under field condition. Singh and Taneja (1979) reported 80% lambing percentage in Marwari sheep. Verma *et al.*, (2005) found that Marwari sheep reared by farmers in hot field environment had lambing percentage ranging from 60 to 70. The higher lambing percentage (85.61) in the present study than the above reports might be due to the periodical health cover given to the farmers flock under the Network Project, breed differences and different agroclimatic conditions.

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REFERENCES

- Acharya RM (1982).** Sheep and goat breeds in India. In: FAO (UN) Eds. Animal Production and Health, Rome, 1-12 and 25-27.
- Balasubramanyam D, Jaishankar S and Sivaselvam SN (2010).** Performance of Madras Red sheep under farmers flocks. *Indian Journal of Small Ruminants* **16** 217-220.
- Devendran P, Cauveri D and Gajendran K (2009).** Growth rate of Madras Red sheep in farmers' flocks. *Indian Journal of Animal Research* **43** 53-55.
- Harvey WR (1990).** User's Guide for LSMLMW PC-1 version mixed model least – squares and maximum likelihood computer program. Iowa State University, USA.
- Juma KH, Alkass JE, Amir A and Fahim T (1998).** On factors affecting yearling Weight in indigenous Iraqi sheep. Proceedings of the 6th World Congress on Genetics Applied to Livestock, of the Association for Advancement of Animal Breeding and Genetics., Armidale, Australia, 11-16 January 220-222.
- Malik BS, Singh RP and Kanaujia AS (1998).** Effect of non-genetic factors on Growth traits in Nali and its crosses with Corriedale and Russian Merino. *Indian Journal of Animal Research* **32** 81-86.
- Mandal A, Pant KP, Nandy DK, Rout PK and Roy R (2003).** Genetic analysis of growth traits in Muzaffarnagari sheep. *Tropical Animal Health and Production* **35** 271-284.

- Nehra KS and Singh VK (2006).** Genetic evaluation of Marwari sheep in arid zone Growth. *Indian Journal of Small Ruminants* **12** 91-94.
- Shah MH and Khan FU (2004).** Establishment of a Nucleus Flock of Highest Genetic Merit for Breeding, Production and Propagation. Annual Report (2003-2004). Livestock Production Research Institute Bahadurnagar, Okara, Pakistan.
- Sharma BS (1989).** Studies on the performance of Magra sheep and its crosses with fine wool breeds in arid zone. M.V.Sc. Thesis, Rajasthan Agricultural University, Bikaner, India
- Sharma RC, Arora AL, Kumar R and Narula HK (1999).** Impact of genetic and non-genetic factors on growth profile in Malpura and Avikalin lambs. *Indian Journal of Animal Sciences* **69** 820-822.
- Singh RN and Bohra SDJ (1996).** Garole sheep: A profile (Bengal breed of sheep locally known as Garole). *Indian Journal of Small Ruminants* **2** 38-42.
- Singh N and Taneja GC (1979).** Effect of prolonged salt intake on the reproduction of ewes and weight of lamb born to Marwari sheep. *Indian Journal of Animal Research* **13** 71-74.
- Singh G, Mehta BS, Sethi IC and Arora CL (1987).** Genetic and non-genetic factors affecting growth traits of Nali and its crossbred lambs under semiarid condition. *Indian Journal of Animal Sciences* **57** 728-734.
- Sivaiah K and Rao KS (1987).** Birth weight and sex ratio in Nellore breed of sheep. *Indian Journal of Animal Sciences* **57** 161-164.
- Sivakumar T, Soundararajan C, Palanidorai R, Ganeshkumar K, Mehendrans M and Malathi G (2006).** Factors affecting birth weight in Madras Red lambs. *Indian Veterinary Journal* **12** 115-116.
- Snowder GD and Van Vleck LD (2003).** Estimates of Genetic parameters and selection strategies to improve the economic efficiency of postweaning growth in lambs. *Journal of Animal Sciences* **81** 2704-2713.
- Tailor SP, Lokesh Gupta and Nagda RK (2008).** Lambing pattern and Sex Ratio in sonadi sheep reared by the farmers in semi-arid conditions of Rajasthan. *Indian Journal of Small Ruminants* **14** 279-282.
- Verma PK, Anil Joshi, Satish Kumar, Maurya VP, Gulyani R and Mittal JP (2005).** Reproductive performance of Marwari Sheep reared by farmers in hot arid environment. *Indian Journal of Small Ruminants* **11** 135-139.
- Viroji Rao ST, Ravindra Reddy Y, Veerabrahmalah and Suresh J (2004).** Non-genetic factors affecting pre and post weaning body weights in two strains of Nellore sheep. *Indian Journal of Small Ruminants* **10** 86-87.