Growth Rate Estimation for Madras Red Ram Under Field Condition

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Abstract

Sheep are important species of livestock and contribute greatly to the agrarian economy in India. Madras Red sheep are native sheep breed in Tamil Nadu reared in Kachipuram and Chennai district for meat production. A study was conducted to evaluate growth performances of Madras Red sheep under smallholder production systems in the Kanchipuram district of the Tamil Nadu. Data were collected and analyzed on the growth of 183 lambs owned by 48 households from January 2013 to October 2014. Least-squares means for birth weight (kilograms) and weight gain (kilograms) at 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12 months of age were 2.84±0.19, 5.71±0.28, 7.71±0.60, 8.56±0.91, 9.41±0.47, 12.70±0.55, 13.59±0.86, 13.95±0.85, 14.14±0.91, 16.74±2.04, 16.26±1.93 and 17.77±3.79 respectively. Sex of lambs had significant effect (P<0.05) on birth weight, weight gain at 1, 2, 3, 5 and 9 months of age. The indigenous Madras Red sheep had faster growth rate and integrated efforts combining improved nutrition, health and participatory community based breeding would help the smallholder farmers to utilize and conserve this immense sheep genetic resource of our country.

Keywords: *Madras Red, Sheep, Lamb, Growth rate, Body weight gain*

Introduction

The sheep population in Tamil Nadu is 4.47 million numbers and having a share of 7.36 per cent in India (Livestock Census 2012). In Tamil Nadu five registered breeds of mutton / meat type breeds of sheep *viz.* Madras Red, Mecheri, Kilakarsal, Ramnad White and Vembur. These sheep are noted for their high meat production qualities. The native breeds are adapted to local management and feeding and are resistant to certain tropical diseases. Cross breeding with exotic breeds is not recommended, as past experience had shown that the crosses with exotic genotypes could not adapt to Indian conditions. The genetic improvement of native sheep breeds should therefore be limited to selective breeding.

The total meat production in the country was reported as 4.0 million tonnes in the year 2007-08 and the production of meat showed an increasing trend during the period from 2007-08 to 2011-12. During the 11th five year plan, an average annual growth rate of 8.44 per cent was registered with an annual growth rate of 12.24 per cent for the year 2011-12.

The native tract for Madras Red sheep is the districts adjacent to Chennai (Madras) and the skin colour is red and hence the breed name. They were medium sized, well built, hairy type of sheep predominantly brown colour. Madras Red sheep are generally maintained on grazing

alone, their meat yield is good as compared to that of other superior meat breeds of sheep of the country. Madras Red sheep population is 1.15 million numbers based on 18th Livestock and Poultry Census and has a share of 25.73 per cent of total sheep population in Tamil Nadu. They represent a unique genetic resource by virtue of their adaptability, resistance to many infectious diseases in the humid tropics of Tamil Nadu. They also exhibit considerable variation in individual performance in meat production and growth rate. Thus, the objective of this study was to estimate the birth weight and weight gain from one month to twelve month of age in Madras Red sheep.

Materials and Methods

Madras Red sheep lamb formed the study material for this study. Data were collected from 183 lambs owned by 48 households under smallholder production systems in the Kanchipuram district of the Tamil Nadu during the period from January 2013 to October 2014. At birth each lamb was identified and date of birth, sex, type of birth and weight were recorded. The body weights at different ages (*i.e*. at birth and from one moth to twelve month of age) were collected and recorded. The body weight of the animals was measured using a digital balance of 150 kg capacity with an accuracy of 50g. The average daily gain in live weight from birth until twelve months was calculated. The efficiency of growth was assessed as the gain in body weight per kg of initial weight.

Statistical analysis: Data were analyzed to estimate the effect of sex on growth traits: birth weight, weight gain at 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12 months of age using least-squares analysis of variance (Harvey, 1990) by fitting constants, including all main effects and interactions.

Results and Discussion

The Least-squares means for birth weight (kilogram) and weight gain (kilogram) at 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12 months of age were 2.69±0.04, 5.71±0.28, 7.71±0.60, 8.56±0.91, 9.41±0.47, 12.70±0.55, 13.59±0.86, 13.95±0.85, 14.14±0.91, 16.74±2.04, 16.26±1.93 and 17.77±3.79 respectively in Madras Red lambs. Sex of lambs had significant effect ($P<0.05$) on birth weight, weight gain at 1, 2, 3, 5 and 9 months of age. Based on birth weight and body weight gain, male lambs had significantly higher growth performance than their female counterparts. Similar findings were reported in Chokla sheep (Kushwaha *et al*., 2010), Muzaffarnagari sheep (Mandal *et al*., 2012) and Mercheri sheep (Thiruvenkadan *et al*., 2011). The gender-based influence may be attributable to the presence of Y-chromosome and the products of SRY gene activation, for example androgens and mullerian-inhibitor substance are known for influencing sex-species effects on foetal growth and on further growth phase (Haqq *et al*., 1994).

Trends for least squares means for weaning weight adjusted to 120 days of age. Weaning weight was affected by sex of lamb. The significant interaction

between weaning weigh gain and sex was in agreement with results from Thiruvenkadan *et al*. (2011) and yearling weight was only affected by place of rearing of lambs (district) in Mecheri sheep. Thiruvenkadan *et al*. (2011) reported that the Mecheri single lambs born in autumn were heavier than twin lambs born in the same season.

Summary

This study illustrates the possible effects of sex and place of rearing on overall growth performance of Madras Red lambs under farmer field management conditions. The indigenous Madras Red sheep had faster growth rate and integrated efforts combining improved nutrition, health and participatory community based breeding would help the smallholder farmers to utilize and conserve this immense sheep genetic resource of our country.

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