

## GROWTH PERFORMANCE OF TELLICHERRY GOATS IN AN ORGANIZED FARM

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### Abstract

The data from 27 male Tellicherry goats and 10 female Tellicherry goats maintained at the Livestock unit of Tamilnadu Agricultural University were taken for the study (Coimbatore, India). The goats were maintained as per the routine feeding and management practices of the farm. The average birth weight recorded was  $2.62 \pm 5.04$  Kg for male and  $2.34 \pm 0.72$  Kg for female kids. The average body weight at 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, and 36 months for male and female goats and average daily gain in body weight were calculated respectively. Correlation of age with average body weight (ABW) showed positive correlation ( $R^2 = 0.99$ ) and were significant at  $P < 0.01$ , correlation of age with average daily gain (ADG) in body weight was positive. The correlation between the ADG and ABW was positive ( $R^2 = 0.41$ ) but not significant. Growth Rate and ADG are important traits in livestock production and management and these traits are affected by feeding and management under farm conditions.

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**Keywords:** growth performance, average weight gain, Tellicherry goats, organized farm

### INTRODUCTION

Goats are important species of livestock in India. They contribute greatly to the agrarian economy, especially in areas where crop and dairy farming are not economical, and play an important role in the livelihood of a large proportion of small and marginal farmers and landless labourers. Tellicherry goats are one among the recognized breeds of goats in India and is widely distributed in Malabar region of Kerala and also reared in different places of Tamil Nadu. This breed is considered as a unique genotype exhibiting higher multiple birth percentages and higher milk yields. Studies on performance of Tellicherry goats in their native environment have been reported [1] and in Tamil Nadu [2, 3]. Goat rearing has been promoted by various governmental and non-governmental organizations all over the world to mitigate rural poverty, especially in unfavorable arid/semi-arid tropical environments [4]. Goats are a drought-tolerant animal, eating mainly wild grasses, tree buds and leaves. They require less care, and reproduce quickly as they start to bear kids from the age of one year old. They also provide small farmers and landless laborers with precious employment opportunities in agricultural lean seasons and play an important role as "livestock" since they can be sold when most needed, for instance, during a severe drought [5]. Birth weight, weaning weight, growth rate and ADG are economically important traits. These traits are controlled by

polygenes and are also affected by feeding practices, climatic factors and management under farm conditions. Hence, this study was conducted to estimate the pattern of growth in Tellicherry goats under prevailing natural and ecological conditions in Tamil Nadu, India.

### MATERIALS AND METHODS

The data sets of 27 male Tellicherry goats and 10 female Tellicherry goats of 36 months of age were taken for the study. The body weights at different ages (i.e. at birth and at 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33 and 36 months) were recorded. Their feeding was mainly through grazing of the available seasonal fodder and forages. However, the animals were offered concentrate ration during scarcity period as well as during breeding season for flushing. The young ones were kept indoors. They were allowed to suckle their dams freely from evening through morning till the goats were taken out for grazing in the morning. Water was provided for 24 hours in the barns. The feeding practices remained uniform throughout the study period. Average birth weight, body weight and daily gain were calculated. One-way ANOVA was calculated using graphpad prism software v 5.0.

### RESULTS AND DISCUSSIONS

The birth weight of the Tellicherry goats in the farm was  $2.62 \pm 5.04$  Kg for male and  $2.34 \pm 0.72$  Kg for female. The average body weight at 3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, and 36 months for male and female goats are presented

**Table 1. Average body weight (kg) of male Tellicherry goat in an organized farm**

Parameter (Kg)	3 month	6 month	9 month	12 month	15 month	18 month
Average body weight (27 Nos.)	2.3 ±0.68	9.2 ±1.4	20.0 ±3.36	27.4 ±2.52	33.7 ±3.56	40.6 ±6.21
Parameter (Kg)	21 month	24 month	27 month	30 month	33 month	36 month
Average body weight (27 Nos.)	45.6 ±6.23	51.3 ±7.65	53.6 ±8.59	59.5 ±9.21	60.4 ±9.65	60.6 ±9.56

**Table 2. Average body weight (kg) of female Tellicherry goat in an organized farm**

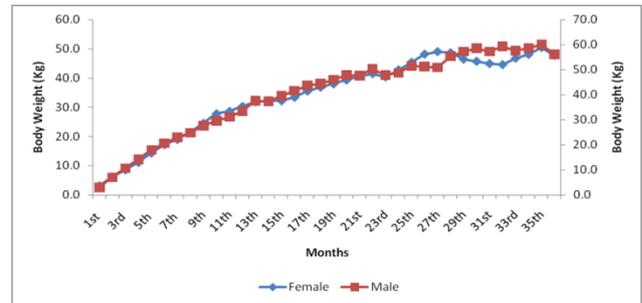
Parameter (Kg)	3 month	6 month	9 month	12 month	15 month	18 month
Average body weight (10 Nos.)	2.6 ±0.49	8.5 ±1.49	16.8 ±1.85	24.1 ±2.22	31.6 ±2.28	34.7 ±4.31
Parameter (Kg)	21 month	24 month	27 month	30 month	33 month	36 month
Average body weight (10 Nos.)	41.7 ±4.88	44.2 ±4.97	50.2 ±5.39	49.6 ±5.87	47.8 ±5.54	51.3 ±5.09

**Table 3 Average daily gain in body weight (kg) of male and female Tellicherry goat**

Month	Male Tellicherry goat (kg)	Female Tellicherry goat (kg)
Birth weight	2.62 ±5.04	2.34 ±0.72
1 month	0.175 ±0.05	0.104 ±0.04
2 months	0.156 ±0.03	0.102 ±0.02
3 months	0.144 ±0.02	0.095 ± 0.02
4 months	0.138 ±0.03	0.092 ±0.02
5 months	0.136 ±0.03	0.096 ±0.02
6 months	0.128 ±0.02	0.096 ±0.02
7 months	0.120 ±0.02	0.090 ±0.01
8 months	0.113 ±0.01	0.089 ±0.01
9 months	0.111 ±0.01	0.091 ±0.01
10 months	0.107 ±0.01	0.092 ±0.01
11 months	0.101 ±0.01	0.087 ±0.01
12 months	0.099 ±0.01	0.084 ±0.01
Overall ADG	1.527 ±0.04	1.119 ±0.03

in Table 1, 2 and average daily gains in body weight are presented in Table 3. The Average daily body weights are presented in Figure 1. The difference in birth weight in small ruminants is attributed to the type of breed and non genetic parameters such as season, birth and parity. The birth weights of kids are also affected by the nutrition of the dam received during pregnancy [6]. The overall birth weight of the kids that were born were heavier than the twins and the triplets, for Tellicherry kids, might be attributed to uterine environment which fetus does not have to share with its littermates, thereby attaining higher body weight than the twin [7]. Khanal et al. [8] reported that the weight of the female kids were higher than their male counterparts. Higher body weight at birth for the male kids as obtained in the present study were also reported by Elabid [9], Karna et al. [10] and Afzal et al. [11] for chegu and beetal goats. The males are heavier than the females in the present study at all the times the results are in consonance with the findings of Naik et al. [12] in kids of Ganjam breed of goat. The birth weight of Tellicherry goat in the present study were in coincidence with the other findings of Acharya [1]; Sivakumar and Thiagarajan [2] and Thiruvankadan et al. [3]. The effect of year was also significant and the average improvement in body weight of the kids was observed in third and fourth year of the dams at the farm [13].

The effect of season and year of birth on birth weight of Sirohi breed of goat of either sex, reared in hot and humid climate of eastern India was reported by Sandip and Jana



**Figure 1. Average body weight of both male and female Tellicherry goats in the organized farm for 36 months.**

[13]. Sandip and Jana [13] reported that the birth weight of the male kids was higher than that of the female and the effect of season was significant on birth. The difference in body weight can be attributed to adaptations of kids to the region with time and environmental conditions with changes in weather parameters with interactions amongst different animals within the same breed. Thiruvankadan et al. [14] reported that the period of birth, type of birth and sex of the kids were the major factors affecting growth rate of Tellicherry goats. The same author reported the effect of birth month on planning kidding season would improve production efficiency. A positive response was observed owing to the generally high and positive correlations, which is desirable in meat animals, although it may be associated with increased maintenance costs.

Yaqoob et al. [15] reported that the effects of fodder availability and prolificacy on birth weight, weaning weight, weight at 6 and 9 months age, and pre- and post-weaning growth rates of Dera Din Panah goat and the effect of prolificacy on the birth weight, weaning weight, pre-weaning growth rate was significant ( $P < 0.05$ ). Yaqoob et al. [15] also reported that the goat productivity was affected by the variation in fodder due to sporadic rains in the area and the author suggested a change in cropping practices such as growing more fodder during rainy season by introducing new fodder varieties and then conserving it for scarcity period. A significant variation in the birth weights of kids during different periods of fodder availability was also reported [16; 17]. The findings of Saroj et al. [18] and Wildeus and Gipson [19] also supported the findings of the present study. Variation in supply and composition of feeds and fodder affects weight of kids at different life stages. Several reports indicated that season and year of birth [20] and type of birth [21], influenced body weight and growth rate in goats. Kid production has received considerable

attention in most parts of the world. However, little has been done on the productivity and the factors that affect productivity of tropical goat breeds. Such information is important if they are to be incorporated into goat production systems

#### CONCLUSIONS

Growth performance of Tellicherry goats in hot and humid climatic condition of Tamilnadu is satisfactory. However, further studies need to be carried out pertaining to their lifetime performance and disease tolerance in the climate and especially so at selected field location before large scale introduction of the breed in the region.

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