

## Performance of Tellicherry Crossbred Goats in Age, Sex and Season under Semi-intensive Production System

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### ABSTRACT

An experiment was conducted in Tellicherry crossbred goat kids under semi-intensive production system of management at KrishiVigyan Kendra, demonstration unit. Tellicherry does crossed with Boer cross buck on observed oestrus. The study area has three distinct seasons namely summer, rainy and winter seasons. The birth records of the goats were analyzed for two years (2014 & 2015). Birth weights of kids were recorded according to sex and seasons. Data were analysed using appropriate statistical methods. The average weight of male kids at birth was  $2.38 \pm 0.10$  kg and in female kids, it was  $1.98 \pm 0.06$  kg. Single born male & female kids at birth were  $2.70 \pm 0.18$  kg and  $2.25 \pm 0.12$  kg, respectively. The birth weight of male kids in summer season were  $2.2 \pm 0.10$  kg,  $2.38 \pm 0.14$  kg in rainy and  $2.7 \pm 0.23$  kg in winter season and the female kids in summer, rainy and winter season was  $1.60 \pm 0.17$ ,  $1.90 \pm 0.08$  and  $2.12 \pm 0.04$  kg, respectively. It is concluded that the type of breed, season, influence the variation in birth weight as birth weight itself has become a significant predictor of later health outcomes.

**Key words:** Tellicherry, Does, Boer, Buck, crossbred, Semi-intensive.

### INTRODUCTION

Goats are characterized as being one of the most fertile domestic species, with up to 90 per cent conception rate and the litter size varies from 1 to 1.5 offspring each year, depending on the breed, season and environmental conditions<sup>7</sup>. Goats provide major source of income & animal proteins to many small holders. Tellicherry goats are one among the recognized breeds of goats in India and it 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<sup>1</sup> and in Tamil Nadu<sup>10,12</sup>. Boer goat is considered to be one of the most desirable goat breeds for meat production and it has gained worldwide recognition for excellent body conformation, fast growing rate and good carcass quality. Boer goats can improve productive performance of many indigenous breeds through cross breeding.

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Therefore, the objective of this experiment is to study the birth weight and seasonal influence for improvement of kids weight under semi intensive system.

## MATERIAL AND METHODS

### Study area:

The study was conducted at Krishi Vigyan Kendra goat farm, Namakkal district, Tamil Nadu. The study area is situated in the north-western zone of Tamil Nadu, located at 11°2' N latitude and 78°2' E longitude at an altitude of 404 meters above mean sea level (MSL). The climate ranges from semi-arid to sub-humid with frequent occurrence of drought. The mean annual rainfall is 750 mm and about 42 per cent of the total rainfall is received during the south-west monsoon. The maximum temperature ranges from 23°C to 42°C and the minimum temperature ranges from 10°C to 31°C. A total of 76 birth records of Tellicherry crossbred kids were taken for this study. The birth records of the goats were analysed for the last three years (2013–2015). The births recorded were also classified according to their sexes. Birth weights of 76 kids were classified according to sexes and season and data analysed statistically<sup>11</sup>.

### Management practices

Goats are maintained under slatted floor (wood) shed in clean and dry condition. Feeding was mainly through grazing of the available fodder and forages and in addition with 150- 250 gm concentrate feed per animal per day was given daily. Feeding practices remain uniform during the study period. Drinking water was provided for twenty four hours in the shed. The animals were provided with anti-helminthic drug and vaccination done as per schedule. The calendar year was divided in to four seasons, summer (March –

June), South west monsoon (June–July) and North east monsoon (September–October), winter (December–January). Tellicherry does were bred with Boer cross buck on observed oestrus under the ratio of 1:20.

## RESULTS AND DISCUSSION

The average body weight at birth for the buck and doe kids were depicted in Table I. The average weight of buck kids at birth was  $2.38 \pm 0.10$  kg and in female kids it was  $1.98 \pm 0.06$  kg. The average body weight at 3 and 6 months of male and female goats were  $11.90 \pm 0.20$ ,  $10.55 \pm 0.21$  kg and  $16.51 \pm 0.40$ ,  $15.25 \pm 0.39$  kg, respectively, presented in Table 1. Tellicherry crossbred male kids were higher ( $P < 0.05$ ) than female kids. In this study, the birth weights of crossbred kids are attributed to the type of breed, season, parity and nutrition of the dam during the gestation period<sup>3</sup>. The results of present study were in accordance with the findings of Sandip and Jana<sup>8</sup>, reported, the birth weight of male kids of Barbari were significantly higher ( $P < 0.05$ ) than female kids. Similar results were also reported by Banerjee and Jana<sup>2</sup>, Sandip, and Jana<sup>8</sup> and Singh<sup>9</sup>.

The average body weight (kg) of single and twins were presented in Table-I. Single born kids at birth weight were  $2.70 \pm 0.18$  kg and twins, it was  $2.25 \pm 0.12$  kg, respectively. Significant difference ( $P < 0.05$ ) found between single born and twins kids. The birth weight obtained in the present study was indicated that the single born kids were higher weight than twins, the results are in concurrence with that of Das<sup>5</sup>, Meenakshi<sup>6</sup> and Thiruvankada<sup>12</sup> this might be due to uterine environment which foetus does not have to share with its littermates, there by attaining higher bodyweight than the twin.

**Table 1: Average body weight (kg) of Tellicherry cross bred male & female kids at different age**

Parameter (kg)	At birth (kg)	3 months (kg)	6 months (kg)
Body weight in male kids	$2.38 \pm 0.10^a$	$11.90 \pm 0.20^a$	$16.51 \pm 0.40^a$
Body weight female kids	$1.98 \pm 0.06^b$	$10.55 \pm 0.21^a$	$15.25 \pm 0.39^a$
Body weight (kg) of single born kids	$2.70 \pm 0.18^c$	$12.2 \pm 0.34^a$	$17.90 \pm 0.26^a$
Body weight (kg) of twins	$2.25 \pm 0.12^d$	$11.50 \pm 0.15^a$	$16.5 \pm 0.37^a$

a,b,c,d means with different superscripts column wise differ significantly ( $P < 0.05$ ).

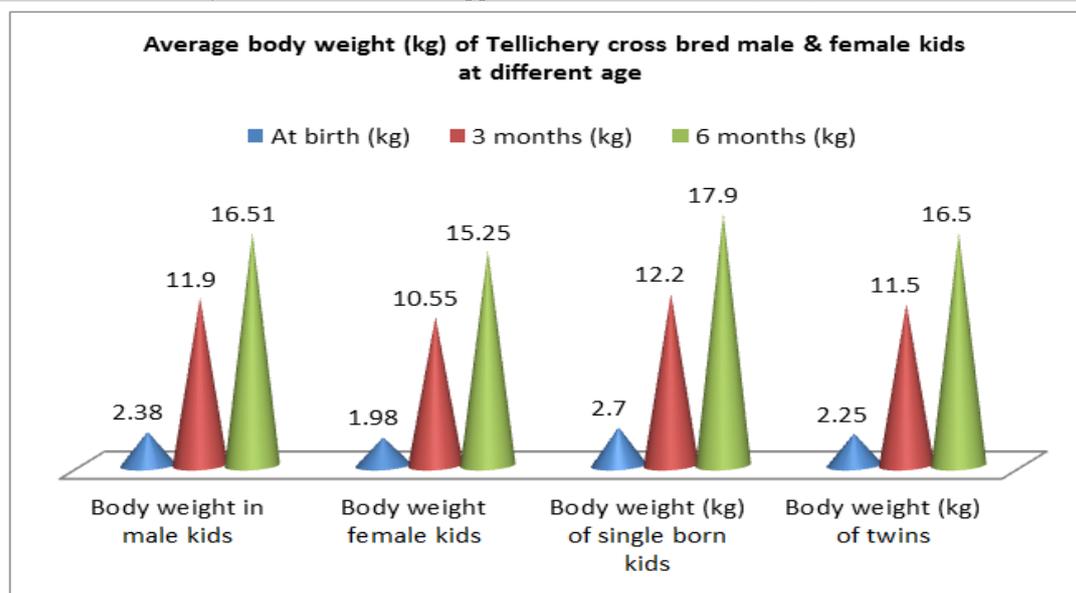


Fig. 1: Average body weight (kg) of Tellichery cross bred male & female kids at different age

The average body weight at different season is presented in Table II. The birth weight at male kids in summer season was  $2.2 \pm 0.10$  kg,  $2.38 \pm 0.14$  kg in rainy and  $2.7 \pm 0.23$  kg in winter season and the female kids in summer, rainy and winter season was  $1.60 \pm 0.17$ ,  $1.90 \pm 0.08$  and  $2.12 \pm 0.04$  kg, respectively. Significant difference ( $P < 0.05$ ) was found between seasons. Winter season born kids had faster growth rate than summer and rainy season born counterparts. The birth weight of male kids was higher than that of the female and the effect of season was significant on birth<sup>8</sup>.

On contrary, Bharathidhasan<sup>4</sup> reported that no significant difference observed in birth weights of male and female kids. The effect of type and season of birth of kid on pre-weaning growth rate is reported by other scholars Zeleke<sup>13</sup> reported the effect of type of birth is due to relatively higher amount of milk consumed per kid as there is no competition for dam's milk when single. The kids born during dry season had low growth rate at the pre-weaning growth stage due to the restriction of milk yield of their does, may compensate the growth in the post weaning growth period.

Table 2: Average body weight (kg) of Tellichery cross bred male & female kids at different season

Seasons	At birth (kg)		3 months (kg)		6 months (kg)	
	Male	Female	Male	Female	Male	Female
Summer	$2.2 \pm 0.10^a$	$1.60 \pm 0.17^b$	$11.75 \pm 0.10^a$	$10.17 \pm 0.06^a$	$16.10 \pm 0.18^a$	$14.39 \pm 0.58^a$
Rainy	$2.38 \pm 0.14^a$	$1.90 \pm 0.08^b$	$11.87 \pm 0.28^a$	$11.00 \pm 0.33^a$	$16.23 \pm 0.51^a$	$15.00 \pm 0.48^a$
Winter	$2.70 \pm 0.23^b$	$2.12 \pm 0.04^a$	$12.20 \pm 0.29^a$	$11.10 \pm 0.29^a$	$17.20 \pm 0.39^a$	$15.20 \pm 0.49^a$

a,b means with different superscripts row differ significantly ( $P < 0.05$ ).

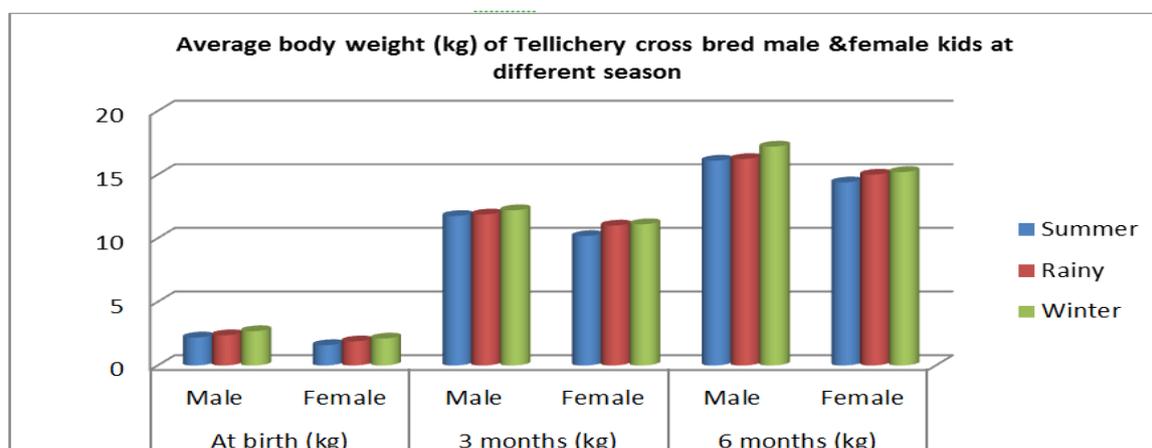


Fig. 2: Average body weight (kg) of Tellichery cross bred male & female kids at different season

### CONCLUSION

The variation in birth weight of kids born in different seasons reflected variation in level of management, some environmental effects like temperature and humidity and availability of good quality green feed in sufficient quantity. The level of management can vary according to the ability of the farm manager, system of crop husbandry and efficiency in the supervision of the farm labor during grazing.

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### Author's Contributions

K. Senthilkumar, Assistant professor incharge of goat unit and also maintenance of reproduction and health management. M. Daisy, Farm manager incharge of fodder production and labour management for grazing and farm activities.

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