

# FACTORS AFFECTING BIRTH WEIGHT OF TELlichERRY (*Capra hircus*) KIDS REARED AT NAMAKKAL IN TAMIL NADU

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The marginal and landless farmers in India regard goat as “poor man’s cash crop” and “mobile bank”. Though, Tamil Nadu is endowed with large number of goats, recognized breeds are very few. Tellicherry goat, originally distributed in Calicut, Cannanore and Malapuram districts of Kerala (Acharya, 1982), also widely seen in western districts of Tamil Nadu. In the home tract the climate is hot-wet whereas in Tamil Nadu these animals are mostly reared in hot-dry regions. Tellicherry goats are medium sized and highly prolific. They are also capable of producing good quality meat and milk. Birth weight is the first observed trait in the life of an animal on which growth, production and reproduction traits are dependant (Koratkar, et al., 1998). So, the present study was undertaken to investigate the various non-genetic factors affecting birth weight of the kids born under the farm conditions.

## MATERIALS AND METHODS

Namakkal 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 seas 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 percent 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.

The data on birth weight of 273 Tellicherry kids born during 1994 to 2004 at the livestock farm, Veterinary College and Research Institute, Namakkal, Tamil Nadu were recorded for the study. The data were analyzed by least-square (LS) technique (Harvey, 1966) adopting linear model and the least square means with standard error (SE) were worked out adjusting the records by fitting constants for the effects of sex, seasons and types of birth, being considered as potential sources of variation. The types of birth observed were single, twins and triplets. The four predominant seasons existed in this area for study were summer (March to May), south-west monsoon (June to August), north-east monsoon (September to November) and winter (December to February) with little variation in their onset.

The effect-wise least square means of birth weight along with the overall mean are presented in Table 1.

The overall least-square means of birth weight of Tellicherry kids at Namakkal was 2.057±0.031 kg. Further, Table 1 reveals that the mean birth weight decreased with increasing litter size with a minor difference between twins (1.933

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kg) and triplets (1.957 kg). The difference in birth weight between single births and multiple births was highly significant ( $P < 0.01$ ). The lighter weight of multiple birth kids at birth might be due to decreased availability of nutrients due to competition and reduced space in the prenatal development. Similar variations were observed by Malik and Kanaujia (1991) in Beetal goats, Ghosh *et al.* (1994 and 2001) and Koratkar *et al.* (1998) in Osmanabadi breed.

There was a sex influence on the birth weight, where males being heavier ( $2.217 \pm 0.065$  kg) than females ( $2.00 \pm 0.061$  kg), the difference was found to be highly significant. This is in agreement with earlier findings reported by Koratkar *et al.* (1998) and Ghosh *et al.* (1994).

The effect of season of birth on the birth weight was found to be highly significant ( $P < 0.01$ ). The kids born in rainfall season (north-east monsoon) were heavier ( $2.356 \pm 0.074$  kg) than in other seasons. This might be due to the conducive atmosphere prevailing in the previous south-west monsoon season in which the most of the gestational duration falls. This finding is in close agreement with Ghosh *et al.* (1993), Ganeshkumar *et al.* (2005) and Sivakumar *et al.* (2005). But, in south-west monsoon season the birth weight was found to be significantly lesser ( $1.96 \pm 0.084$  kg) which might be due to the preceding summer season where in the conception, implantation and early growth of the foetus had taken place. Reduced feed intake in summer due to scarcity of available fodder may also be another important reason.

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**Table 1.**  
The least square means of birth weight

Effects	N	Birth weight (Kg)	
		Mean	SE
Population mean	273	2.05	0.03
<b>TYPE OF BIRTH</b>	**		
Single	103	2.30 <sup>a</sup>	0.05
Twins	158	1.93 <sup>bc</sup>	0.04
Triplets	12	1.95 <sup>ac</sup>	0.15
<b>SEX</b>	**		
Male	142	2.41 <sup>a</sup>	0.06
Female	131	2.00 <sup>b</sup>	0.06
<b>SEASON OF BIRTH</b>	**		
Summer	54	2.06 <sup>a</sup>	0.10
Southwest monsoon	50	1.96 <sup>a</sup>	0.08
Northeast monsoon	50	2.35 <sup>b</sup>	0.07
Winter	119	2.08 <sup>a</sup>	0.07

Means bearing common superscript in a column do not differ significantly

\*\* Significant at 1% level (P<0.01)