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CERTAIN FACTORS AFFECTING GROWTH IN MALABARI GOATS*

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Malabari, the only goat breed of Kerala is possessing inheritance from Jamnapari, Cutchy, Kathiawari, Arab and other breeds. The small breed having a matured weight of 40 kg in males and 36 kg in females; is reputed for its high prolificacy (ICAR 1979). The information regarding, the time taken to reach the mature weight under a variety of influencing factors, is scanty.

In Kerala only two different seasons are there viz., Dry—extending from December to April and Wet—extending from May to November (Somanathan, 1980). The influence of these contrasting seasons on the growth of this breed was studied in the present work. The variation in growth rate due to sex and age were also measured by analysing the data statistically.

Materials and Methods

The growth data collected over a period of six years from November 1976 to June 1982 from Goat Unit of Kerala Agricultural University were used for the present study. The animals present during the period were first put into two groups.

Group i. Born during dry period (December to April)

Group ii. Born during wet period (May to November).

The groups were divided into male and female sub-groups to study the sex effect.

The animals were maintained under standard scientific feeding and managemental practices throughout the study period. During the colostrum feeding stage (5 days) the kids were allowed to remain with the dam. During the first month the kids were allowed natural sucking three times daily. During 2nd, 3rd and 4th month milk was hand fed at the rate of 1/8th, 1/10th, and 1/15th of body weight respectively. A kid starter

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(Table 1) was fed to the kids, @ 100 g/day at the end of first month which was gradually increased and reached 150-250 g/day at the end of 4th month. This was further increased to 250-350 g/day at 5 months and continued upto 7 months. Roughage was also fed starting with 250 g/day at the end of first month and reaching 500 g/day at the end of 4th month. At this stage the milk was gradually replaced by concentrate and roughage (1-1.5 kg/day). The females and males were separated at 5 months of age. From 7th month onwards the goats were fed on a commercial pellet ration containing 20% crude protein on dry matter basis upto the end of the study period.

The animals were weighed at weekly interval througout the study period. The data were statistically analysed as per Snedecor and Cochran (1967).

Table 1

Composition of kids starter

Ingredients		Parts
Yellow maize	—	32
Groundnut cake	—	30
Coconut cake	—	10
Rice bran	—	10
Mineral mixture	—	2
Salt	—	1

Vitamin AB_2D_3 25 g/100 kg feed

Results and Discussion

The average birth weights and body weight at weekly interval of Malabari Goats are presented in Table II.

The average birth weight recorded were 1.71 kg and 1.62 kg respectively in male and female Malabari Goats. This is in agreement with the reports of Somasekharan (1971) who recorded 1.7 kg as the average birth weight.

Sex of the kid was found to affect the birth weight to the extent of 5.5% in the present study. The rate of growth was found to increase from birth to 50 weeks of age in both the sexes. Highest growth rate was recorded in the 5th month. The difference observed in the growth rate was found to be significant between sex ($P < 0.05$) and highly significant between age. The data showing the influence of sex and age on growth rate are given in table III. Similar reports were given in other Indian breeds (Data *et al.* 1962; Guha *et al.* 1968; Singh and Singh, 1974).

Season of kidding did not exert any influence on the birth weight of Malabari goats. This is akin to the findings of Raghavan and Nair (1981). Khan and Sahini (1983) observed a significant effect of season on the growth rate of Jamnapari goats. The effect of season on the growth rate was worked out and given in Table III.

Table II

Mean weekly weight (kg) of Malabari goats from birth to 50 weeks

	Birth weight	Age in weeks					
		2	6	10	14	18	22
Male	1.71	2.37	3.52	4.96	6.22	7.83	9.13
Female	1.62	2.18	3.32	4 40	5.58	7.03	8.21
Average	1.644	2.221	3.42	5.513	5.702	7.182	8.386
	26	30	34	38	42	46	50
Male	9.86	11.26	11.92	13.04	14.0	15.43	17.84
Female	9.22	10.16	11.19	12.0	12.90	13.91	15.10
Average	9.343	10.362	11.327	12.19	14.243	14.17	15.547

Table II

Influence of sex and age on growth rate

	1	2	3	4	5	6
Male	2.87 ± 0.138	3.51 ± 0.180	4.96 ± 0.249	6.22 ± 0.358	7.82± 0.50	9.13 ± 0.56
Female	2.18 ± 0.058	3.33 ± 0.081	4.40 ± 0.123	5.58 ± 0.150	7.03± 0.17	8.21 ± 0.192
	7	8	9	10	11	12
Male	9.86 ± 0.86	11.26 ± 0.65	11.92 ± 0.043	13.04 ± 0.575	14.00± 0.78	15.43 ± 0.85
Female	9.22 ± 0.201	10.16 ± 0.206	11.19 ± 0.238	12.00 ± 0.265	12.9 ± 0.310	13.91 ± 0.35

ANOVA

	df	SS	MSS	F
Between sex	1	158.686	158.686	17.39*
Between age	12	18126.752	1510.5626	105.6**
Error	1206	11001.752	9.12218	
Total	1219	29286.79		

* Significant
** Highly significant

The male kids when studied seasonwise recorded an increase in weight from 2.3±0.135 kg to 15.87±1.05 kg in the group born in dry season. Whereas those born in wet season recorded a higher weight in the first month (2.48±0.83 kg).

The female kids born in dry season showed a lower weight at 1 month (2.0±0.07 kg) and a lower 12 month weight (12.7±0.448 kg). During the wet season female kids recorded a higher weight at first month (1.43±0.08) and a higher 12 month weight (15.75±0.39 kg) than the females born in dry seasons.

The live weight in Sirohi goats were significantly higher during winter season (Misra, 1983). The present observation in Malabari goat is similar to the above finding.

Summary

Influence of certain factors viz. sex, age and season; on the growth rate of Malabari goats were studied. Significant sex difference and highly significant age influence was found on growth rate. Though season of kidding did not influence the birth weight the climatic factors influenced the growth rate of Malabari kids.

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