

Performance of Konkani Kanyal, Osmanabadi and Crossbred Goat in Hot Humid Coastal Climate of Goa

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Abstract Twenty finisher and fifteen grower goats of Konkani Kanyal, Osmanabadi and Crossbred (K × O) were considered for the study. Performances were studied under semi intensive housing, feeding and managerial condition at goat farm of KVK. All the goats were housed in semi open RCC house. Breed wise average birth weight was found to be 2.933 ± 0.370 , 2.445 ± 0.084 and 2.900 ± 0.105 kg in Konkani Kanyal, Osmanabadi and Crossbred (K × O) kids respectively with overall mean value of 2.573 ± 0.139 kg. Growth rate in Konkani Kanyal, Osmanabadi and Crossbred (K × O) grower goats were observed to be 127 ± 11.10 , 122 ± 14.58 and 124 ± 9.37 g/day respec-

tively with overall mean value of 124.33 ± 9.21 g/day. So, it would be concluded that all the three breeds performed well in semi intensive system of management under the hot humid coastal climate of Goa. However performance was best in case of Konkani Kanyal breed followed by Crossbred and Osmanabadi breed of goat.

Keywords Goat, Microclimate, Performance, Semi intensive system.

Introduction

Goats occupy unique place among domestic livestock in India because of their high population (140.54 m) and ability to survive and produce under unfavorable climatic and managerial condition. Goats possess superior efficiency for transforming feed into milk, meat and capable of selective browsing on undesirable vegetation. Goat is known as poor man's cow, because its milk is wholesome and nourishing. It is considered especially for infants and aged persons due to easy digestibility. Goat is the principal meat producing animal in India and therefore goat meat i.e. chevon fetches more revenue than mutton and beef. Goat population in India is 140.54 million as per basic Animal Husbandry Statistics, 2012 [1]. State wise population revealed that highest goat population is in Rajasthan i.e. 21.50 m (15.30%) followed by West Bengal (15.07 m, 10.72%), Uttar Pradesh (14.79 m, 10.53%) and Maharashtra (10.39 m, 7.39%). The popu-

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lation of male and female goat in India is 40.79 m and 99.75 m respectively. The goat population in rural and urban area of India is 133.31 m and 7.23 m respectively. Konkani Kanyal, Osmanabadi are the most predominant breeds of Goat in Goa. Although the hot humid climate is not very suitable for goat production, an effort was made to study the performance of goat under semi intensive system of management under coastal climate of Goa.

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Materials and Methods

Twenty finisher goats consisting of seven Konkani Kanyal, three Osmanabadi, ten Crossbred (K × O) goats and fifteen grower goats consisting of three Konkani Kanyal, three Osmanabadi, nine Crossbred (K × O) goats were considered for the study. The experiment was continued for a period of one year. Live weight, growth, feeding performance and health status of goat were studied under semi intensive housing, feeding and managerial condition at goat farm of KVK. All the goats were housed in semi open RCC house with east–west orientation. They were allowed to graze daily for three hours during 7–10 am. Live weight and physiological response were recorded bimonthly as per standard procedure. Microclimate in the goat shed was recorded daily as per standard procedure [2]. THI was calculated as per standard procedure [3]. Mortality and morbidity were recorded as and when disease occurred. Average feed supply in grower, finisher and adult goat was @ 100, 150 and 200 g/d respectively. Deworming was done with broad spectrum anthelmintic twice a year before and after rainy season. Data were analyzed as per standard procedure [4] using SPSS 10.4 version package.

Results and Discussion

Twelve does delivered during this period, out of which



Fig. - 1, Konkani Kanyal Adult Goat



Fig. - 2, Osmanabadi Adult Goat



Fig. - 3, Crossbred Nursing Goat (K × O)

Performance of Konkani Kanyal, Osmanabadi and Crossbred goat in Hot humid Coastal Climate of Goa (Figure). **Fig. 1.** Konkani Kanyal Adult Goat. **Fig. 2.** Osmanabadi Adult Goat. **Fig. 3.** Crossbred Nursing Goat (K × O).

three twin birth and nine single births were recorded. So, percent of twin and single births were 25% and 75%. However, it was reported that the twinning percentage in Osmanabadi goat was found to be 10.52 ± 1.98 and the twinning percent ranged from 0 to 26.31%

[5]. Other worker [6] recorded much higher i.e. 34.67% twinning in Konkan Kanyal goat. Average birth weight of male and female kid was 2.633 ± 0.210 kg and 2.483 ± 0.150 kg respectively with overall mean value of 2.573 ± 0.139 kg. Breed wise average birth weight was found to be 2.933 ± 0.370 , 2.445 ± 0.084 and, 2.900 ± 0.105 kg in Konkan Kanyal. Osmanabadi and Crossbred (K × O) kids respectively with overall mean value of 2.573 ± 0.139 kg. Sex ratio was male to female 9 : 6 i.e. 1.5 : 1. The birth weight recorded by other worker [6] in Konkan Kanyal under farm conditions was much lower than that of present findings. They indicated the average birth weights of male and female kids as 2.275 and 2.055 kg.

Live weight gain bimonthly in Konkan Kanyal, Osmanabadi and Crossbred (K × O) grower goats were observed to be 1905 ± 32 , 1829 ± 42 and 1861 ± 27 g respectively. Growth rate in Konkan Kanyal, Osmanabadi and Crossbred (K × O) grower goats were observed to be 127 ± 11.10 , 122 ± 14.58 and 124 ± 9.37 g/day respectively with overall mean value of 124.33 ± 9.21 g/day. Live weight gain bimonthly in male and female grower goat was found to be 1888 ± 26 and 1737 ± 29 g respectively. So, growth rate in male and female grower goat were found to be 126 ± 10.73 and 116 ± 12.04 g/day respectively. So, highest growth was observed in Konkan Kanyal breed and in male goats. Average feed intake in grower goat was found to be 96 ± 5.27 g/day.

Live weight gain bimonthly in Konkan Kanyal, Osmanabadi and Crossbred (K × O) finisher goats were observed to be 966 ± 19 , 825 ± 24 and 903 ± 14 g respectively. Growth rate in Konkan Kanyal, Osmanabadi and Crossbred (K × O) finisher goats were observed to be 64.40 ± 4.10 , 55.04 ± 5.29 and 60.20 ± 3.16 g/day respectively with overall mean value of 59.87 ± 3.01 g/day. Live weight gains bimonthly in male and female finisher goats were found to be 925 ± 22 and 871 ± 26 g respectively. Growth rate in male and female finisher goat were found to be 61.68 ± 4.05 and 58.07 ± 5.17 g/day respectively. However, mean average daily gain in Osmanabadi goat was reported to be 50.29 to 76.60 g/day in Konkan region [5] which was lower than the present findings. So, similar to grower highest growth was also observed in Konkan Kanyal breed and in male finisher goats. Average feed

intake in finisher goat was recorded to be 147 ± 6.10 g/day.

Study on physiological response of goat indicated that highest rectal temperature and skin temperature were recorded in Osmanabadi goat whereas highest respiration and pulse rate were recorded in Crossbred goats. ANOVA of all the parameters revealed non significant differences between the breeds. Overall mean value of rectal temperature, skin temperature, respiration rate and pulse rate were $102.1 \pm 0.13^\circ\text{F}$, $34.8 \pm 0.19^\circ\text{C}$, 38.3 ± 1.87 number/min and 99.7 ± 2.72 number/min respectively which were within normal physiological limit (Table 1).

So far disease occurrence of goat it was recorded that one doe aborted at three months of pregnancy, one kid suffered from diarrhoea and one adult doe suffered from tympanitis. All the three cases responded to treatment and was cured soon. No mortality recorded during this period. In a study it was reported earlier [7] that there was 3.23% mortality in Konkan Kanyal goats as compared to 9.52% observed in other nondescript goats of the region. The mortality observed in this goat was due to food poisoning (0.50%), blot/tympani (0.90%), lumber paralysis (0.60%), indigestion (0.60%), enteritis (0.30%) and accident (0.30%). No case of pneumonia was observed. Lesser mortality in Konkan Kanyal goat was due to higher adaptability of this breed towards high temperature, humidity and rainfall of this region. Average air temperature, RH, THI, maximum and minimum temperature during the period of study was 27.16°C , 60.42%, 76.19, 30.50°C and 23.83°C respectively.

References

1. Anonymous (2012) Basic Animal Husbandry Statistics, Deptt. of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture, Govt of India. In Agricultural Research Data Book. ICAR, Krishi Bhawan, New Delhi.
2. IMD (1994) Introduction, Bull Ind Meteorol Dep, Pune, Maharashtra.
3. West JW (1994) Interaction of energy and bovine somatotropin with heat stress. *J Dairy Sci* 77 : 2091—2092.
4. Snedecor GW, Cochran WG (1994) Statistical methods. 6th edn. Oxford and IBH Pub Co, New Delhi.
5. Bharambe VY, Shinde SS (2014) Effect of different

- housing systems on performance of Osmanabadi kids in Konkan region of India. *The Ind J of Small Rumin* 20 : 132—133.
6. Sahare MG, Sawaimul AD, Ali SZ, Kolte BR (2009) Kidding percentage and twinning ability in Osmanabadi goat in Vidarbha climatic condition. *Vet World* 2 : 60—61.
 7. Verma NK, Agarwal RAK, Dixit SP, Kawatkar VS, Dangi PS, Kaur Navneet, Mishra Priyanka, Joshi BK (2012) Konkan Kanyal-Characters and performance of a newly discovered goat germplasm of Maharashtra. *Ind J Anim Sci* 82 : 1079—1081.