

WEIGHT GAIN, FEED AND WATER INTAKE IN RELATION TO DIFFERENT REARING SYSTEMS ON SANGAMNERI GOATS

**A.C. Pathan, A.V. Khanvilkar, S.M. Bhokre, S.T. Hande, V.R. Patodkar
and S.M. Bhalerao**

Department of Livestock Production and Management
KNP College of Veterinary Sciences, Shirval, Dist-Satara. (M.S), India
Maharashtra Animal and Fishery Sciences University, Nagpur, India
E-mail: drajay.khanvilkar@gmail.com

Abstract: The present study entitled “Growth performance and behaviour pattern of Sangamneri goat under different rearing systems” was undertaken to find out the effect of different rearing systems on growth performance in Sangamneri goat. For this study, twenty one (21) adult female Sangamneri goats around two years of age with uniform body weight were under taken. These goats were randomly distributed into three groups of equal number (07each). Group (T0) allowed to browse on “jungle grasses” and for (T1) group allowed to browse on “jungle grasses” with supplementation of commercial concentrate and (T2) group allowed to complete stall feeding with supplementation of commercial concentrate. The experiment was conducted during summer season for a period of three months (90 days). The parameters studied were growth performance, feed and water intake, under different rearing systems. The average growth rate of Sangamneri goats of T0 group was 106.04 (g/wk) and 15.14 (g/day), T1 group was 136.92 (g/wk) and 19.56 (g/day) and in T2 group it was 206.59 (g/wk) and 29.51 (g/day). Growth rate of stall feeding with concentrate supplementation (T2) group and browsing with concentrate supplementation (T1) group was significantly ($P<0.05$) higher than browsing (T0) group goats. The daily total feed (g/day) intake was also significantly ($P<0.05$) higher in stall feed group. The average daily total water intake (lit/day) of goats were significantly ($P<0.05$) higher under browsing (T0) and browsing with concentrate supplementation (T1) group than stall feeding with concentrate supplementation (T2) groups, due to grazing on dry land during hot summer season.

Keywords: Sangamneri goats, Different rearing systems, Weight gain, Feed and Water intake.

Introduction

‘Growth’ is defined as a correlated increase in the mass of body in definite intervals of time with characteristic of the species [10]. Problems related to growth have attracted much attention during the past few years. It is the most important for livestock production as it forms the foundation for other forms of production such as meat, wool and milk. Study on growth of livestock seems to be a logical approach for assessing the animal responses to a set of managerial conditions. The values of simple indices like body weight in growing

animals have been recognized as measures of growth ever since scientific animal husbandry came into existence.

Materials and Methods

The present study entitled “Study on growth performance and behaviour pattern of Sangamneri goat under different rearing systems” was carried out at “Sangamneri Goat Unit” of instructional Livestock Farm Complex (ILFC) and Department of Livestock Production and Management of Krantisinh Nana Patil College of Veterinary Science, Shirwal, Tal. Khandala, Dist. Satara (M.S.) India. The research was carried out during the months of April to July, 2016, where Sangamneri goats were housed according to standard managerial practices of loose housing system and let loosed for browsing on “jungle grasses” (*ad. lib.*) around the farm premises for seven hours (10.00am – 5.00pm) a day on naturally grown open pasture land. Drinking water will be provided two times during the confined hours of the day. For this experiment, twenty one (21) adult female Sangamneri goats around two year age old with uniform body weight were under taken. These goats were randomly distributed into three groups of equal number (07 each). Group (T0) allowed to browse exclusively on “jungle grasses” and for (T1) group allowed to browse on “jungle grasses” with supplementation of commercial concentrate and (T2) group allowed to rare on complete stall feeding with supplementation of commercial concentrate ration. Deworming and Vaccination carried out at college farm routinely as per schedule. Pre-adoption period of 15 days was given to all three groups before starting research work.

Results and Discussion

Study on growth performance of livestock seems to be logical approaches for assessing the animal responses to a set of managerial conditions. The values of simple indices like body weight in growing animals have been recognized as measures of growth ever since scientific animal husbandry came into existence.

1. Weight gain (g/wk):

The body weight gain (g/wk) of Sangamneri goats under different rearing systems are presented in table. The overall weekly and daily average body weight gain of Sangamneri goat under stall fed with concentrate supplementation feeding system was 206.59 ± 9.06 and 29.51 gms, respectively. The significant difference ($P < 0.05$) was observed for daily/weekly growth rate of Sangamneri goats between different rearing systems. T2 group have significantly ($P < 0.05$) higher growth rate than T1 and T0 groups, and T1 group have significantly ($P < 0.05$) higher growth rate than T0 group. These findings are in agreement

with the findings of [8], [20], [14], [24], [3], [26], [21], [5], [19] and [15], respectively. However, these findings are contraindicated to the reports of [13], [16] and [9], respectively. A positive correlation in weight gain and dietary feed intake was also reported by many workers. Generally growth rate of adult goat is low [2], significantly ($P < 0.05$) higher growth rate was observed in stall fed with concentrate supplemented group (T2) as compared to other rearing systems. In the present study, this can be probably due to availability of ample amount of feed and more comfortable environmental zone to stall fed group as compare to other groups, which were on grazing in summer period with less availability of jungle grass and also heat stress. Concentrate supplemented group (T1) also show significantly ($P < 0.05$) higher weight gain than sole grazing group (T0).

2. Feed intake (gm/day):

The average feed intake (gm/day) in Sangamneri goat under different rearing systems is presented in table. The overall average feed intake (gm/day) of Sangamneri goat under stall fed with concentrate supplementation feeding system was 4202.08 ± 43.66 gms. The significant difference ($P < 0.05$) was observed for daily feed intake of Sangamneri goats between different rearing systems. T2 group have significantly ($P < 0.05$) higher feed intake than T1 and T0 group. T1 group have significantly ($P < 0.05$) higher feed intake than T0 group. These findings are in agreement with the reports of [23], [6], [22], [17], [12], [3], [19] and [1], However, these findings are contraindicated to the reports of [12], Significantly ($P < 0.05$) higher feed intake was observed in stall fed with Concentrate supplemented group (T2) as compared to other rearing systems. In present study, this can be probably due to availability of ample amount of feed and more comfortable environmental zone available to the stall fed group as compare to other groups, which were grazing on pasture land in summer period with less availability of jungle grass and also may be due to heat stress which decreases the feed intake.

3. Water intake (ml/day):

The average water intake (ml/day) in Sangamneri goat under different rearing systems is presented in table. The overall average water intake of Sangamneri goat under grazing stall fed with concentrate supplementation feeding system was 2080.98 ± 27.01 . The significant difference ($P < 0.05$) was observed for daily water intake of Sangamneri goats between different rearing systems. T0 and T1 group have significantly ($P < 0.05$) higher water intake than stall fed (T2) group. These findings are in agreement with the reports of [11], [7], [18], and [4], respectively. Significantly ($P < 0.05$) higher water intake was observed in T0 and T1

group as compared to stall fed (T₂) group. In present study, this can be observed probably due to grazing on land with mostly availability of dry grasses in summer season and also hot hours of grazing time increases water consumption. However, T₂ group was in stall fed condition with ample greens which may reduces water consumption.

Conclusion

There was a significant effect of different rearing systems on growth performance, total feed and water intake of Sangamneri goats. The growth performance and daily total feed intake was significantly higher in stall feeding with concentrate supplementation (T₂) and browsing with concentrate supplementation (T₁) group than browsing (T₀) group. Further, water intake in T₀ and T₁ group was significantly increased than T₂ group due to grazing on land with mostly availability of dry grasses in hot summer season. Thus, it can be concluded that, stall feeding with concentrate supplementation and browsing with concentrate supplementation systems are a better options for rearing Sangamneri goat breed.

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TABLE

Sr no.	Particulars	Browsing Group	Browsing with Concentrate Supplementation Group	Stall fed with Concentrate Supplementation Group	Results	CD value (0.05)
1	Weight gain (g/wk)	106.04 ^c ± 2.07	136.92 ^b ± 5.07	206.59 ^a ± 9.06	Significant	17.534
2	Feed intake (g/day)	2494.06 ^c ± 34.61	2878.90 ^b ± 15.78	4202.08 ^a ± 43.66	Significant	95.906
3	Water intake (ml/day)	3995.49 ^a ± 30.85	3683.84 ^b ± 32.30	2080.98 ^c ± 27.01	Significant	86.441

^{a,b,c} Means within the weeks with different superscripts differ significantly (P < 0.05).