International Journal of Livestock Research, Vol. 10 (12) Dec' 2020
http://www.ijlr.org
eISSN: 2277-1964
NAAS Rating 2020 – 5.36

Original Research

Feed Intake and Behavioural Performance of Osmanabadi Kids on Different Flooring Systems

M. B. Wakchaure[1]*, M. D. Kharwadkar[2], M. F. Siddiqui[3], V. S. Ingle[2], N. P. Telange[1] and A. S. Sonawane[4]

[1]M.V.Sc Scholar, Department of Livestock Production and Management, College of Veterinary and Animal Sciences, Parbhani, Maharashtra, INDIA
[2]Assistant Professor, Department of Livestock Production and Management, College of Veterinary and Animal Sciences, Parbhani, Maharashtra, INDIA
[3]Retd. Professor and Head, Department of Livestock Production and Management, College of Veterinary and Animal Sciences, Parbhani, Maharashtra INDIA
[4]M.V.Sc Scholar, Department of Animal Nutrition, College of Veterinary and Animal Sciences, Parbhani, Maharashtra, INDIA

*Corresponding Author: monali.wakchaure17792@gmail.com

How to cite this paper: Wakchaure, M., Kharwadkar, M., Siddiqui, M., Ingle, V., Telange, N., & Sonawane, A. (2020). Feed Intake and Behavioural Performance of Osmanabadi Kids on Different Flooring Systems. *International Journal of Livestock Research*, 10(12), 105-108. doi: http://dx.doi.org/10.5455/ijlr.20200927011353

Received : Sep 27, 2020
Accepted : Nov 16, 2020
Published : Dec 31, 2020

Abstract

An experiment was planned to study the feed intake and behavioural performance of Osmanabadi kids following different flooring systems.28 Osmanabadi kids of similar age, body weight and either sex were kept on different floorings i.e. T0 -Concrete floor, T1 - Soil floor, T2 -Murrum floor and T3 -Sand floor. The overall means of daily feed intake (g/d) was significantly higher in T2 (679.33±13.41), T1 (594.17±9.35) and T0 (493.88±7.55) than T3 (480.68±8.91). The overall means of rumination behaviour shown by kids for T0, T1, T2 and T3 were 382.83±7.19, 389.50±7.21, 402.00±4.76 and 390.83±6.51 min/24hrs, respectively. The overall means of agonistic behaviour shown by kids for T0, T1, T2 and T3 were 42.16±1.01, 41.16±2.40, 39.83±2.19 and 40.83±2.18 min/24hrs, respectively. The overall means of resting behaviour was significantly higher in T2 (458.83±4.38), T1 (447.00±2.91) and T3 (439.33±2.91) than T0 (435.83±6.84). It was concluded that murum type of flooring material is comparatively superior with other different types of flooring.

Keywords: Agonistic Behaviour, Feed Intake, Floorings, Osmanabadi Kids, Resting, Rumination

Introduction

Goats, being very important domestic animals in small & marginal farmers' economy, are regarded as poor man's cow. There are 24 registered breeds of goats in India. Among them Osmanabadi goat is one of the best breeds viewing its hardiness, resistance to diseases and advantage of dual benefits for milk and meat. Their native tract is Maharashtra state and adjoining areas of Andhra Pradesh state. As far as heat tolerance is concerned, this breed is quite preferred over other breeds. The goats are usually kept under extensive management and reared on natural vegetation, but due to shrinkage of grazing land and as is blame of for soil erosion and desertification, the maintenance of flocks under extensive system is threatened. However, semi-intensive and intensive systems of goat rearing with small flocks are gaining momentum. In extensive system of management, the animals are reared on poor and degraded grazing lands resulting in lower productive and reproductive performance. Fundamentally, behavioural research is necessary to evaluate goat housing and raising arrangements. It is known that when animals are fed in groups, the social facilitation results in a higher feed intake reducing the growth rate variation in the group and better social behaviour compared to animals that are fed individually (Titto *et al.,* 2010). Environmental factors especially different types of floors can be modified for the betterment of animal welfare and their performance. So, there is a need to suggest a suitable floor type for effective housing in goats. Bear in mind these facts; the present study was carried out to study effect of different types of floor on daily feed intake and behaviour of Osmanabadi goat kids.

Materials and Methods

The present study was undertaken at Osmanabadi goat unit of Red Kandhari Research and Instructional Farm of Department of Livestock Production and Management, College of Veterinary and Animal Sciences, MAFSU, Parbhani (Maharashtra) for duration of 90 days (12 April to 11 July, 2018). Twenty-eight Osmanabadi kids of 6-7 months age, similar size, body weight (12.58 kg) and of either sex, were randomly divided into four groups and housed under four different flooring systems. Kids of T_0 were maintained on concrete floor, T_1 were maintained on soil floor, T_2 were maintained on murum floor and T_3 were maintained on sand floor. The floor space provided for the weaned kids were 0.8 m^2 (as per BIS standard). All kids were managed under similar systems of feeding and management.

Feed Intake

The dry matter requirement of the kids was calculated with the help of thumb rule & 500 gm of green and 400 gm of dry fodder was placed in manger, first half during the morning at 8.00 hours and second half at 17.00 hours in the evening. The leftover quantity in all groups was measured in the next day morning before offering the fresh fodder. The green fodder available for feeding was Marvel, Yashwant, Hedge lucerne & Maize. The fixed amount of concentrate i.e., 100 gm/day/animal was also given in the morning to all the groups. The amount of daily offered feeds and morning refusal per goat were weighed and recorded to calculate the daily feed intake.

Behavioural Indicator

The under mentioned behavioural activities (rumination, agonistic behaviour and resting period) in all the groups of kids were recorded by constant personal observation throughout the day (24hrs) at fortnightly interval (Fraser and Broom 1990). The Observers, PG Research scholars were he also for recording the behaviour for 8 hr. continuously, then in the another shift another PG Research scholar studied the behavioural performance, likewise in three cycles we have completed the behavioural parameters for 24 hr. throughout the day.

Statistical Methods

The data generated were statistically analyzed by using Complete Randomized Design (CRD) for various parameters as per statistical methods recommended by Snedecor & Cochran (1994).

Results and Discussion

Daily feed intake and behavioural pattern of Osmanabadi kids on different floorings are presented in Table 1.

Table 1: Daily feed intake and behavioural pattern of Osmanabadi kids with different floorings

	T_0 (Concrete floor)	T_1 (Soil floor)	T_2 (Murum floor)	T_3 (Sand floor)
Daily feed intake (gm)	493.88±7.55	594.17±9.35	679.33±13.41	480.68±8.91
Rumination behaviour(min/24 hrs)	382.83±7.19	389.50±7.21	402.00±4.76	390.83±6.51
Agonistic behaviour(min/24 hrs)	42.16±1.01	41.16±2.40	39.83±2.19	40.83±2.18
Resting behaviour(min/24 hrs)	435.83±6.84	447.00±2.91	458.83±4.38	439.33±2.91

The overall means of daily feed intake of Osmanabadi kids for T_0, T_1, T_2 and T_3 were 493.88±7.55, 594.17±9.35, 679.33±13.41 and 480.68±8.91 gm, respectively.

Table 2: Analysis of Variance (ANOVA) for daily feed intake of Osmanabadi kids

Source of Variation	d.f.	S.S.	M.S.S.	Cal- F
Treatment	3	23,70,739.23	7,90,246.41	1,163.360**
Week	12	3,60,372.59	30,031.05	44.210**
Treatment X Week	36	1,48,345.39	4,120.71	6.066**
Error	312	2,11,935.24	679.28	

The Analysis of Variance for daily feed intake of Osmanabadi kids on different floorings showed highly significant ($P<0.01$) differences within treatments, weeks and treatment week interactions. The Overall means of daily feed intake (g/day) were significantly higher in T_2 (679.33±13.41), T_1 (594.17±9.35) and T_0 (493.88±7.55) than T_3 (480.68±8.91). Reason is that, whatever the food which is been offered is not been spoiled, as it is spoiled in the concrete floor and sand floor, due to Splashing of the food, they become soiled, dirty and that's why the animal they don't take it. Whereas in Murum and Soil floor due to dry condition of floor, food not become dirty and it remains dry, that's why it is been utilized properly by goats. If it is having any type of bad odour or smell then the animal rejects and they don't take it, but in case of these both (Murum and soil floor) they have consumed more because even it is been spilled out it is not catching any type of the bad smell or odour. That's why the feed intake is increased in case of Murum and Soil floorings than Concrete and Sand flooring. The results obtained in the present study are towards increasing side than the results quoted by Moniruzzaman *et al*. (2002) who reported 334.36±7.92 feed intake gm/day in stall feeding. However higher values (0.95±0.06 and 1.02±0.09) kg/day were quoted by Kumari *et al.* (2013) in house having asbestos roof and slatted floor and house having shed net as roofing material and kaccha floor in Osmanabadi kids.

The average duration of rumination in T_0, T_1, T_2 and T_3 were 382.83±7.19, 389.50±7.21, 402.00±4.76 and 390.83±6.51 (min/24 hrs) respectively. The higher average rumination time was observed in Osmanabadi kids in T_1 group followed by T_0, T_2 and T_3 groups. Bell and Lawn (1957) found that the goats spent an average of 7 hours 44 minutes ruminating in 24 hours, Kumari *et al.* (2016) reported rumination time near and away from the feeding trough in group 1 (goats fed un-chopped green fodder in circular feeder), 2 (goats fed un-chopped green fodder in linear feeder) and 3 (goats fed chopped green fodder in linear feeder) were 3.33±0.73 and 7.53±0.99, 1.23±0.49 and 6.99±1.24 and 0.34±0.13 and 4.19±0.47 hrs, respectively, Panda *et al*. (2016) reported rumination time in Osmanabadi kids were 24.65±0.36, 24.94±0.39 and 26.08±0.49 mins/4hr/wk, in the space allowance of 0.8, 0.7 and 0.6 m^2 respectively.

The average duration of agonistic behaviour in T_0, T_1, T_2 and T_3 were 42.16±1.01, 41.16±2.40, 39.83±2.19 and 40.83±2.18 (min/24 hrs) respectively. The higher average agonistic behaviour (min/24hrs) time was observed in T_0 group followed by T_1, T_3 and T_2 groups. The results obtained in the present study are non-comparable as literature on agonistic behaviour of Osmanabadi kids maintained on different floorings is scanty. However, Mohammed (2014) reported aggressive behaviour frequencies in Egyptian Balady goats as were 75.75±6.42 and 78.89±4.02 min per 8 hrs in loose and tethered groups, respectively. The average duration of resting behaviour in T_0, T_1, T_2 and T_3 were 435.83±6.84, 447.00±2.91, 458.83±4.38 and 439.33±2.91 min/24hrs, respectively. The results obtained in the present study are non-comparable as literature on resting behaviour of Osmanabadi kids maintained on different floorings is scanty. However, Moniruzzaman *et al*. (2002) reported 8.66±3.51 min/2 hrs and 40.66±4.04 min/6 hrs in Black Bengal goats in stall feeding group in morning and evening, respectively. Panda *et al*. (2016) reported the average lying period of Osmanabadi kids in 0.8, 0.7 and 0.6 m^2 floor space allowance were 26.35 ±0.49, 25.95

±0.47, 24.88 ± 0.35 min/4hr/wk, respectively. Thakur *et al.* (2017) reported that resting behaviour was significantly higher (P<0.05) in large space allowance groups in Beetal kids.

Conclusion

Thus, from above findings, it can be concluded that Murum type of flooring material is comparatively superior with other different types of flooring systems. Floorings provision as managerial practice in goats has effects on resting and rumination behaviour, where Murum type of flooring is favourable to the goats for superior growth performance.

Acknowledgement

Facilities provided by the Associate Dean, COVAS, Parbhani, for undertaking this study, are gratefully acknowledged.

Conflict of Interests

There is no conflict of interest.

Publisher Disclaimer

IJLR remains neutral concerning jurisdictional claims in published institutional affiliation.

References

1. Bell, F.R. and Lawn, A. M. (1957). The pattern of rumination behavior in housed goats. *The British Journal of Animal Behavior,* 5(3), 85-89.
2. Fraser, A. F. and Broom, D. M. (1990) Farm animal behaviour and welfare, 3rd edition. Bailliere Tindall, London, England.
3. Kumari Anjali, B. H. M. Patel, Vipin Maurya, Asu Singh Godara, Med Ram Verma and Mukesh Singh (2016) Behavioral pattern of Rohilkhandi kids under different feeding systems, *Veterinary World*, 9(7): 773-776.
4. Kumari Anuradha, Baig, M.I., Kodape, A.H., Dagli, N.R., Patwardhan, S.H. and Ghorpade, P.P. (2013) Growth Performance of Osmanabadi Kids Under Different Housing Systems, *The Indian Journal of Small Ruminants*,19 (2): 215-216.
5. Mohammed Hesham H. (2014) Effect of Some Managerial Practices on Behaviour and Performance of Egyptian Balady Goats, *Global Veterinaria,* 13 (2): 237-243.
6. Moniruzzaman, M., Hashe, M. A., Akhter, S. and Hossain, M. M. (2002) Effect of Feeding Systems on Feed Intake, Eating Behavior, Growth, Reproductive Performance and Parasitic Infestation of Black Bengal Goat. *Asian-Aust. J. Anim. Sci.* Vol 15, No. 10: 1453-1457.
7. Panda Rameswar, Sarat Chandra, A., Ghorpade, P.P., Chopade, S.S., Kodape, A.H., Siddiqui, M.B.A. (2016) A Study on Rumination and Resting Behaviour of Osmanabadi Kids Housed in Katcha Housing System Under Different Floor Space, I.J.S.N., VOL.7 (4) 2016: 737-739.
8. Snedecor, G.W. and Cochran, W.G. (1994) Statistical Methods, 8th Edition, Oxford and IBH Publishing Co., Colcutta.
9. Thakur, A., Malik, D. S., Kaswan, S. and Saini, A.L. (2017) Effect of different floor space allowances on the performance and behaviour of Beetal kids under stall-fed conditions. *Indian Journal of Animal Research*, 51 (4): 776-780.
10. Titto, E.A.L., Titto, C.G. and Gatto, E.G. (2010). Reactivity of Nellore steers in two feedlot housing systems and its relationship with plasmatic cortisol. *Livestock Science* 129, 146–150.

****