**Feeding Levels of Goats Reared in Bonli of Sawai Madhopur District, India**

**Abstract**

The feeding levels of goats reared in Bonli, Sawai Madhopur district, would depend on various factors such as the purpose of rearing (dairy or meat production), breed of goats, age, weight, and available feed resources. However, provide with some general guidelines for feeding goats: Forage: Forages such as grasses, legumes, and browse is the primary source of nutrition for goats. In Bonli, the availability of forage may vary depending on the season and local vegetation. Provide a sufficient quantity of fresh forage to meet the nutritional needs of the goats. Goats typically consume around 3-4% of their body weight in forage daily. Concentrates: In addition to forage, goats may require concentrated feed to meet their nutritional requirements, especially during lactation, growth, or if they are being raised for meat production. Concentrates can include grains, oil cakes, and protein-rich supplements. The quantity and composition of concentrates will depend on the specific nutritional needs of the goats. Mineral Supplements: Provide a mineral supplement to ensure that the goats receive essential minerals such as calcium, phosphorus, and trace elements like copper, zinc, and selenium. The availability and composition of minerals in the local soil and forage should be considered when determining the appropriate mineral supplementation. Feeding Management: It is important to divide the daily feed into multiple meals throughout the day. This helps in better digestion and utilization of nutrients. Also, ensure proper storage of feed to prevent spoilage and contamination.

**Key words:** Feeding, Forages, Goats and Mineral Supplements,

**Introduction**

Livestock is one of the fastest growing sectors in most developing countries and has been undergoing what has been termed as a Livestock Revolution (Delgado, 2003). The ability of goats to utilize a broad range of feed resources and adapt to marginal conditions presents an opportunity for income generation among the poor rural households (Namonje-Kapembwa *et al.,* 2022). India and Africa have the largest goat populations. The global dairy goat population was estimated to be 218 million in 2017 **(F.A.O., 2019)**. Nearly 60% of the world’s goats are found in Asia with China, India, Pakistan and Bangladesh having the highest populations of goats. Although most income from global goat production comes from meat sales and there has been a simultaneous increase in goat milk production and consumption. Goat is known as the "Poor man's cow" (Singh, 2024). The goat number increased by 10.14% over previous Livestock census 2012. Goat contributes about 27.18% of total livestock population in India. Out of total about 75% Indian goats are graded as non - descript. It produced 1.23 million tonnes of milk which share 3.0% of total animal milk production in the country, 370 million tonnes of meat (37% of total meat), 7.6 million tonnes of skin and 58 metric tonnes of Pashmina fibre. Goat shares 13.53% total animal production also in the country during 2018-2019. The apparent digestibility of nutrients in goat is higher than cattle and buffaloes and lower than sheep. The apparent digestibility of various nutrients had found to as dry matter -59.7%, O.M. - 64.0%, crude protein - 66.4%, ether extract - 71.2%, crude fibre - 66.9%, nitrogen - free - extract - 60.9% (Jang and Majumdar, 1962).

India possesses vast caprine resources with 37 goat breeds distributed in different bio-climates with varied nutritive value, however, some goat breeds native to north and north-western region namely Beetal, Jamunapari, Jakhrana, Surti and Zalawadi are considered as Indian dairy breed with 150 to 500 litre milk yields (Singh *et al.,* 2023). The present worldwide distribution of goats shows that the number of milch type goats are more in the temperate zone and dual type are mostly located in sub - tropical and tropical Asian and African countries. India ranks first for its genetic resources and numerical superiority of goat in world. There are as many as 28 breeds of goat in India. Jamunapari and Beetal are considered to be the important milch breeds of India. Goats provide a dependable source of income to 40.00 per cent of rural population belonging below the poverty line in the country. The dairy goat can as best convert the pastures and fodder crops into milk as can the modern dairy cow, like most small production unit, the goat is expensive with labour, but in its use of raw materials it surpasses the cow. They are hardier than any other live - stock and do well under harsh climatic conditions.

The intensive feeding system for sheep and goats is better than extensive system and at par or better than semi-intensive system for lamb and kid fattening purpose from 3 to 6 month of age (Devi *et al.,* 2020). The goats seem adapt their feeding behaviour to the kind of diet they receive (Abijaoude *et al.,* 2000). The feeding was adopted by maximum respondents in 80.00 per cent households of North-West Semi-Arid region of Rajasthan and goats were usually grazed on community pasture land for more than 5 hours daily. Majority of goat keepers provided 100 to 200 gm. concentrate prior to milking for their goats and 84.16 per cent respondents used cereals like wheat or bajra as concentrate. Maximum goat rearers were not aware to provide mineral mixture as well as common salt feeding. Significant effect of goat flock size on mode of feeding, grazing site, grazing hours and green fodder provided to different category of animals while other practices like protection of pasture land, type of green fodder used for feeding, looping of the trees, feeding of dry fodder, preservation of leaves, concentrate feeding, type of concentrate feeding fattening ration feeding of mineral mixture and feeding of common salt were not significantly affected by flock size of goats (Kumar *et al.,* 2016).

Goat is known as the poor man’s cow because it provided supplementary income and livelihood to millions of resource to poor farmers and landless labourers of rural India. Nutrient requirement such as water, carbohydrates, fats, protein, minerals and vitamins are essential for daily metabolic activity of goats with others animals. Water is universal nutrient and ratio between dry matter intake and water consumption is 1:1.2, dry matter and the other nutrients are important for animals. Average dry matter requirement to goat is 4% of body weight. Energy is used for maintenance and for fuelling the processes of growth and production which derived from the breakdown of various nutrients including fat, protein and carbohydrates. Formulate the ration and feeding of the various stages of goat from kid to adult stage as per their requirement in terms of mainly dry matter intake (DMI), Dietary crude protein (DCP) and Total digestible nutrient (TDN) (gm.) for maintenance, growth, lactation, pregnancy and breeding (Nipane *et al.,* 2023). The addition of sweet and salt taste in total mixed ration (TMR) had a positive impact on feed intake and growth performance in growing goats (Naveen *et al.,* 2024).

The goats in India, unlike other animals, are reared for multipurpose i.e. providing milk, meat, fibre hides and manure for over varied use and have not been bred for one specific purpose. Most of the breeds of goats, which we have been developed through isolation than any purposeful breeding. In this study, we focused on feeding levels of goats reared in Bonli of Sawai Madhopur District of Rajasthan.

**Material and methods**

Requisite data for this study were collected from the village and tehsil Bonli district of Sawai Mahdopur region which is situated in East part of Rajsthan. The region has a sub - tropical climates with an average annual rainfall of 60 mm. The rainfall generally starts in the third week of June and lasts till the end of September. Maximum temperature during summer may go up to 38°C, while the minimum temperature may reach even below 5.5 ° C during the month of January. To be more specific the survey covered the goats owners from the following five villages. (1.Sotoli, 2.Bonli, 3.Puneta, 4.Harsota and 5.Badagava sarwar). In each of the villages 8-10 goats owners were selected randomly for collecting necessary information In all forty - nine households with varied land holdings and possessing goats were chosen for this very purpose. The data were collected through questionnaire by personal interview and on the spot observations by visiting each towns consecutively for five days. Format of questionnaire is given here as under: The work pertaining to collection of data and information of feeding of adult goats was carried out during the rainy season starting from June to July in 2020. In all forty - nine households with varied land holdings and possessing goats were chosen for this very purpose. Collection of data and preparation of research instrument.

#### Results and Discussion

**Distribution of Households owning goats and herd characteristics in relation to size of goat herds.**

A cursary glance at the data contained in Table 1. it became tangible clear that out of forty - nine farm families selected under this study, fourteen (14) farmers have less than 5 goats, 28 owned possessed between 5-10 goats and rest 7 families had 10-15 goats,

Similar on an average 7.16 adult goats including 2.0 in milk and 5.17 dry goats were kept per households in these villages. The total average numbers of goats in the I (<5 goats), ll (5-10 goats) and III (> 10 goats) groups of households averaged as 3.29, 7.64 and 13.00 goats respectively. The corresponding means for the number of in milk goats per households were 1.21, 2.04 and 3.43 and for the numbers of dry goats were estimated as 2.08, 5.60 and 9.57 in groups I, II and III respectively.

It is interesting to note that the average number of goats tended to be greater as the size of goats holding in the household increased this may probably be due to increase in requirements of goats owners for their family needs by selling the bucks and kids and to some extent milk also. Similar increasing trend in Number of bovines with increasing size farm area has also been noted by several other workers.

**Table-1: Distribution of households and herd characteristics of goat.**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Group** | **No. of household** | **Total No. of goats** | **No. of doe** | **No. of buck** | **No. of goats in milk** | **No. of kids** | **Av. Total milk yield/day** | **Farm area ((acres)** | **Average No. of kids per kidding** |
| **I(<5)** | 14 | 3.29 | 1.21 | 0.00 | 1.21 | 2.07 | 1.29 | 1.00 | 1.92 |
| **II (5-10)** | 28 | 7.64 | 2.46 | 0.46 | 2.04 | 4.71 | 1.27 | 1.55 | 1.96 |
| **III (>10)** | 7 | 13.00 | 4.28 | 1.14 | 3.43 | 7.57 | 1.36 | 2.00 | 1.85 |
| **Overall mean** |  | 7.16 | 2.00 | 0.53 | 2.00 | 4.78 | 1.30 | 1.18 | 1.91 |

The wet average daily milk yield in goats in the households ranged between 1.0 to 1.5 litres with an overall value ​​of 1.29 litres. The wet average daily milk yield of goats was apparently higher in families possessing more than 15 goats over the other groups and the daily wet average milk yield in goats under reference owned to increase with increase in number of goats per household. Apart from that, obviously the milk production per household to be a function of in milk bovines and there milk production capacity.

**Feeding practices of Goats in Relation to Size of numbers of goats**

The practices of feeding that include the preparation of the ration, frequency of feeding, system of procurement of ingredients used etc. have a great influence on labour involvement for the job and level of nutrition of animals needs on elaboration. Observations pertaining to these and variation in these due to size of goats groups holding in cities are presented through Table 2.

Roughage feeding to the goats was done both through stall feeding and grazing by majority of the farmers. For carrying out the grazing operations 87.76 per cent of the households used child labour, 8.16 per cent of the household used woman labour and at only 4.08 per cent household this job was performed by man. This may clearly indicate that man labour was only seldom involved for this operation.

The chaffing of the fodder both dry as well as green was done at all household and this work was exclusively carried out by woman with little extent by man and children labours. Out of forty - nine households taken into consideration about 30.61 per cent household the chaffing of fodder was done by man, 42.86 per cent women were involved for this work and remaining 11.21 per cent households this kind of operation was done by children. Of the total households studied about 16.32 per cent provide roughages to their goats one time daily and the remaining served roughages in stalls in two and three times. No farmers did urea treated bran and ever after recognized as progressive farmers these goat owners of this western belt does not know that urea can be fed to their bovine to supplement protein requirement. Similarly out of total households of this study majority of the households’ i.e. 85.71 per cent fed their goats weighed quantity of feed.

**Table-2: Feeding practices of goats as influenced by the number of goats/household**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Groups per cent of household | | | |
| I  (<5) | II  (5-10) | III  (>5) | Overall  mean |
| 1. Av. No. of bucks per households | - | 46.42 | 85.72 | - |
| 1. Stall fed goats | 100.00 | 100.00 | 100.00 | 100.00 |
| 1. Procurement of conc.   (1.) Home made  (2) Purchased | 92.85  7.15 | 89.28  10.72 | 85.72  14.28 | 89.80  10.20 |
| 1. Feeding common salt 2. yes 3. No | 14.28  85.72 | 14.28  85.72 | 14.28  85.72 | 10.20  89.80 |
| 1. Feeding mineral mixture   (1)Yes  (2)No | -  100.00 | 3.57  96.43 | 14.28  85.72 | 4.08  95.92 |
| 1. Feeding weighed quantity of concentrate | 71.42 | 89.28 | 100.00 | 85.71 |
| 1. Bringing of roughages form field/marked   (1)Man  (2)Woman  (3) Child | 85.72  -  14.28 | 71.42  7.14  21.44 | 42.86  28.57  28.57 | 71.43  8.16  20.41 |
| 1. Grazing of goats through   1)Man  (2)Woman  (3) Child | -  -  100.00 | 3.70  1.71  94.59 | 14.28  14.28  91.44 | 4.08  8.16  87.76 |
| 1. Hours spend for grazing 2. Three 3. Four 4. Five | 42.85  35.71  21.44 | 21.44  46.43  32.13 | 14.30  42.85  42.85 | 26.53  42.86  30.61 |
| 1. Chaffing of fodder through   1)Man  (2)Woman  (3) Child | 42.85  50.00  7.15 | 25.00  60.71  14.29 | 28.57  71.43  - | 30.61  59.18  11.21 |
| 1. Doing roughage feeding 2. Once 3. Twice 4. Thrice | 21.43  78.57  - | 14.28  82.14  3.58 | 14.28  85.72  - | 16.32  81.64  2.04 |
| 1. Concentrate feeds provided 2. Once 3. Twice 4. Thrice | 57.14  42.86  - | 60.71  39.29  - | 42.85  57.15  - | 57.14  42.86  - |
| 1. Time of concentrate feeding 2. Before milking 3. At milking 4. After milking | 21.44  64.28  14.28 | 21.42  42.85  35.73 | 42.86  28.57  28.57 | 24.49  46.94  28.57 |

Majority of the households provided weighed quantity of concentrate in association to milk yield potential of the goats and at all the households the concentrate was soaked for few hours before feeding.

About 24.49 present of the household supplied concentrate to the goats daily before milking, 46.94 per cent households the concentrate supplied to at milking and remaining 28.57 per cent served concentrates to goats after milking. Majority of the goats’ owner i.e. 89.80 per cent did not supply common salts to goats and none of them used trace mineral supplements for feeding. No significant variation in the aforesaid practices of feeding concentrate to goats was exhibited due to size of goats groups holding.

**Conclusion**

In recent times, in addition to many processed or unnatural foods, there is a demand for goat's milk, as well as the use of many derivative and medicinal foods. It is important to note that these observations are general and can vary depending on the specific region, available resources, management practices, and the overall objectives of goat keeping within a household. Local knowledge, experience, and consultation with experts familiar with the specific context of goat farming in Bonli, Sawai Madhopur district, would provide more accurate and region-specific information on feeding practices influenced by the number of goats per household. Again it has appeared the supply of TDN to the goat under reference did not differed significantly as the number of goats per households increased.

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