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University of agricultural sciences, Dharwad management of stall fed and grazing methods of sheep and goat rearing in Dharwad district

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Abstract
The present study was carried out in Dharwad district 2018-19. The multistage random sampling technique was followed for the study. For the study, 2 taluks of Dharwad district namely, Dharwad and Navalgund taluk were purposively selected to throw light on the study. These 2 taluks have more than 65-70 per cent of sheep and goat population and stall fed units in the study area. From each taluk, 8 villages and 3 stall fed units were selected for the study. The management practices in stall fed and grazing methods of sheep and goat rearing were analysed in tabular analysis. Most of the stall fed rearing farmers was found to be following modern and scientific management practices as compare to the grazing method of rearing farmers who still follow traditional management practices because of their unwillingness due to lack of financial support and lack of awareness.

Keywords: Rearing, grazing feeding materials, breeds, labour management, pucca house, shifting tents

Introduction
India's domesticated animals segment has persistently given basic help to the rustic economy as a significant occupation for provincial population and next just to 4 harvest raising. By virtue of ideal financial factors, for example, changing dietary patterns, higher obtaining influence, urbanization, expanding well being awareness towards protein rich eating routine, favored meat because of religious inclinations, there has been increment sought after for meat and the division has picked up significance regarding commitment to salary, business and outside trade profit. Goat and sheep meat are moderately little yet significant fragments where nearby interest is exceeding supply. They have short age interims, higher rates of productivity and promoting of Goat-Sheep meat is far simpler. Rajasthan, Jammu and Kashmir, Uttar Pradesh, Gujarat, Hilly locales of North and Eastern Himalayas are the Indian districts with most extreme animal's population.

In spite of different sheep and goat improvement practices in errand in different states of the country, sheep raising still continues being a wandering/backward proposal and as such generally stressed to poor and landless people. For scanty sensible brushing lands in most of the states, the shepherds keep moving their gatherings over expansive districts inside or even in the neighboring states. Sheep raising is thusly practiced in an expanded structure dependent upon the region and the territory. In Rajasthan, around 5 lakhs sheep are in unchanging movement where the gatherings don't return to their home tract at whatever point of the year. The shepherds, in any case, keep facilitating one another and return home in this way. More than 70 per cent of the population lives in rustic regions. The lessening per capita land accessibility is probably going to put more weight ashore in the years to come, undermining vocation security of little and minimal ranchers. Subsequently, united exercises like animal husbandry should be seen as viable instrument for enhancing ranch pay and giving sustenance and occupation protections to flimsier segments in rustic zones. Domesticated animals is prevalently known as "live banks", are the real supporters of national riches and in this way help in improving the expectations for everyday comforts of rustic individuals.

Sheep/Goat farming is for the most part in the flimsier segments of the network, which either don't have land, or their property possessions are small to the point that yield development does not give gainful business all the year. Further, in the significant sheep/goat raising zones, touching and stock watering assets are accessible just for a couple of months in a year, convincing shepherds to have an itinerant existence. Because of absence of training, the sheep/goat proprietors are not ready to acknowledge and receive improved farming rehearses, which even generally are not brought to them by augmentation specialists. Sheep/Goat farming

has accordingly stayed in a disregarded state. With diminishing area for touching sheep/goat the escalated arrangement of sheep/goat raising (stall feeding) is grabbing bit by bit in the state. In this framework feed is developed solely for encouraging sheep/goat and grub is changed over to silage. Silage is bolstered to sheep/goat every day fusing urea and mineral blend. Crisp green Lucerne is enhanced day by day @ 0.4 kg/sheep or goat as a protein source. In slow down bolstering technique, chose developed grasses are reaped physically and day by day sustained to animals in their lodging territory.

The world cattle population accounts for 1365 million, buffalo population accounts for 172 millions, sheep accounts for 1059 and goat population accounts for 790 million. The complete sheep in India is 65.06 million numbers in 2012, declined by about 9.07 per cent over enumeration 2007. The goat population has declined by 3.82 per cent over the past statistics and the all out goat in the nation is 135.17 million numbers in 2012. In India, Andhra Pradesh stands first in sheep population (26.39 million numbers), trailed by Rajasthan (9.08 million numbers) and Karnataka (9.58 million numbers). In goat population, Rajasthan stands first (21.66 million numbers), trailed by Bihar (12.16 million numbers) and Karnataka is in ninth position (4.79 million numbers). In Dharwad district, the total population of sheep is 73,982 and goat 62,120 in the district during the 2012 census.

Methodology

The multistage random sampling was followed for the selection of taluks, villages, farmers and market intermediaries maintaining sheep and goat. Dharwad district was purposively selected for the study. From Dharwad district, 2 taluks namely, Dharwad and Navalgund taluk were purposively selected to throw light on the study. These 2 taluks have highest number of sheep and goat population and stall fed units in the study area. In Dharwad taluk 8 major villages were selected from each village 5 respondents rearing sheep and goat were selected through random sampling technique and Navalgund taluk 8 major villages were selected for the study based on the maximum number of sheep and goat population and from each taluk 3 stall fed units were selected for the study. Thus, the total sample size was 86 respondents from sheep and goat rearing farmers were collected. Similarly, to elicit information about market intermediaries were selected from each taluks 5 village merchants, 5 wholesalers cum commission agent, 5 retailers (butchers) were selected randomly. Thus, the total sample size was 116. The primary data was collected from the sample respondents through personal interview method with pre-tested questionnaire. The primary data was collected from the sheep and goat rearing farmers and stall fed units. The data pertaining to the agricultural in year 2018-19.

Results and Discussion

The results obtained from the study are shown in Table 1. The study reveals that the 50 per cent of age of stall fed method of sheep and goat rearing farmers were between 20-40 years of age and between 40-60 years of age while in case of grazing method, 35 per cent, 48.75 per cent, 12.50 per cent and 3.75 per cent of the rearing farmers were below the age of 20 years, between 20-40 years, between 40-60 years and above 60 years of age respectively. It was found that about 16.66 per cent of the rearers were illiterate, 16.67 per cent of rearing famers completed their education up to PUC and 50.00 per cent completed Degree, in case of stall fed method of rearing. In case of grazing method of rearing about 90 per cent of the rearers were illiterate and only 10 per cent of the rearers completed their education up to SSLC. As per educational status of sheep and goat rearers is concerned, stall fed rearers were found to be educated and many of them were having qualified up to PUC, while as grazing method of rearing farmers were comparatively illiterate and hence, they were following traditional farming practices of sheep and goat. It shows that stall fed rearing farmers were found to be younger than the grazing method of rearing farmers. This indicates that the younger and educated farmers know well about productivity of sheep and goat rearing. Regarding family size of the stall fed method of rearing farmers, about 50 per cent of the rearers were having medium family size, 33.33 per cent were having small and 16.67 per cent were having large family size. In case of grazing method of rearing farmers, 52.50 per cent of them were having medium family size, 33.75 per cent were having small and 13.75 per cent were having large family size. Regarding land holding status, among stall fed rearing farmers 16.67 per cent were marginal famers, 33.33 per cent were small farmers, 33.33 per cent were medium famers and 16.67 per cent were large farmers and in case of grazing method of rearing farmers 66.25 per cent were marginal farmers and 33.75 per cent were small farmers. In both stall fed and grazing method of rearing farmers were having medium family size followed by small family size. The major stall fed method of rearing farmers was small and medium but marginal in case of grazing method of rearing farmers similar findings were found in Sunil Kumar *et al*. 2017 [6].

The results obtained from the study are shown in Table 2. Regarding type of rearing, 83.33 per cent were self rearing and 16.67 per cent gave for contract in case of stall fed method of rearing farmers and 86.25 per cent of them were self rearing and 13.75 per cent gave for contract in case of grazing method of rearing farmers. The study reveals that most of the stall fed and grazing method of rearing farmers were self rearing instead of giving contract to others. Further, it was found that 50.00 per cent of the stall fed rearers was having low experience, 33.33 per cent were having medium experience and 16.67 per cent were having high experience in sheep and goat rearing. In case of grazing method of rearers 26.25 per cent were having low experience, 45.00 per cent were having medium experience and 28.75 per cent were having high experience in sheep and goat rearing. It was found that stall fed method of sheep and goat rearing farmers have lower experience than grazing method of rearing farmers in sheep and goat rearing. In the study area, the grazing method of rearing farmers are rearing sheep and goat from long back period and it is feasible, hence most of the grazing method of rearing farmers have higher experience in sheep and goat rearing. Among stall fed rearers 66.67 per cent were having sheep and goat farming as their primary occupation and 33.33 per cent were having it as subsidiary occupation but in case of grazing method of rearers 73.75 per cent were having sheep and goat farming as their primary occupation and 26.25 per cent were having it as subsidiary occupation. Most of the stall fed and grazing method of rearing farmers were having sheep and goat rearing as their primary occupation because of its feasibility and the higher income. Regarding average age at which animals are procured, stall method rearing farmers procured at the age of 2-3 months while grazing method of rearers do not procure. Regarding average age of the animals at which sheep and goat are sold, 5-6 months of age in case of stall fed method but 8 months

and above in case of grazing method of rearing because in grazing method of rearing sheep and goat weight gain takes time as their most of the energy is lost while searching for feed and water. Kenguri and Chennai red were the type of sheep breeds and Jamunapari and Beetal were the type of goat breeds reared by stall fed rearers and local breeds in case of grazing method of rearers similar findings were found in Divekar *et al*. 2016 [3].

Most of the stall fed method of rearing farmers was found to be following modern and scientific management practices as compare to grazing method of rearing farmers. The results showed that all the stall fed units (100.00%) were having pucca house while all the grazers (100.00%) were having shifting tents. it was revealed that, the stall fed units were found to have pucca houses and shifting tents in case of grazing method of rearing because of their nomadic nature. About 83.33 per cent of stall fed rearers were feeding their animals in three times per day and 16.67 per cent were feeding them four times per day. In case of grazing method, the animals were fed round the clock which contribute to 100 per cent. The green fodder was mostly used by rearers which is contributed 83.33 per cent in stall fed method and 51.25 per cent in grazing method. Mix of green and dry fodder was mainly used by rearers of grazing method which contributed 48.75 per cent while only 16.67 per cent in case of stall fed method. The study also reveals that most of the stall fed rearers were following three times per day feeding schedule and preferred green fodder and dry fodder, in study area maximum the farming sector were irrigated and plenty of water resources is available due to that most of the stall fed method of rearing farmers cultivated green fodder which is cheap and highly productive due to which the weight of the animal increases by 150 gm every day and feeding schedule is round the clock in case of grazing method by which the animal increases its weight by only 50-60 gm per day. The concentrates mostly used by stall fed rearers which contributed 50.00 per cent of the total, 33.33 per cent were using broken maize +mineral mixture and 16.67 per cent were using other supplements like cotton seed cake, bran mixture etc. In case of grazing method, no supplements were given by the rearers to the animals. In case of concentrates, more of the stall fed rearers was found to use groundnut cake because of their high nutritive value. About 50.00 per cent of stall fed rearers were following three times per day watering to animals, 33.33 per cent two times per day and 16.67 per cent irregularly. While in case of grazing method, watering to the animals was irregular which contributed to 100.00 per cent. The study showed that among the stall fed rearers 66.66 per cent of the rearers were using hired labour, 16.67 per cent were using family labour and 16.67 per cent were using both family and hired labour. In case of grazing method of rearers 60.00 per cent were using family labour, 25.00 per cent used both family and hired labour and 15.00 per cent used hired labour. Most of the grazing method of rearing farmers used family labour as it is their family business. For breeding purpose, about 83.33 per cent of stall fed rearers were following natural breeding and 16.67 per cent were following artificial insemination. In case of grazing method of rearers 100.00 per cent were following natural breeding in Table 3. Most of the rearers found to follow natural breeding because of lack of willingness of rearers for adoption of scientific technology similar findings were found in Bimal *et al*. 2010.

Health management practices followed by sheep and goat rearing farmers were presented in Table 4 and the table indicates that about 66.67 per cent of stall fed rearers were vaccinating their animals twice in a year while 33.33 per cent were vaccinating once in a year. While in grazing method 50.00 per cent of rearers were irregular, 33.75 per cent were vaccinating once in a year and 16.25 per cent were vaccinating twice in a year. About 50.00 per cent of stall fed rearers were following regular control of ecto-parasites and 50.00 per cent were following irregular. In case of grazing method, 63.75 per cent were following irregular while 36.25 per cent were regular. About 66.67 per cent of stall fed rearers used to clean the animals regularly and 33.33 per cent were irregular. In case of grazing method, 80.00 per cent rearers used to clean the animals irregularly while 20.00 per cent used to follow regular practice. In case of stall fed is 66.67 per cent rearers were following regular deworming, while 33.33 per cent were following irregular, but in grazing method, 83.75 per cent of the rearers were irregular and 16.25 per cent were following regular deworming practice. In case of stall fed method, average body weight of sheep and goat is 42 kg and 45 kg, respectively while in case of grazing method, 30 kg and 34 kg, respectively. The study reveals that farmers follow vaccination schedule either once or twice in a year. In case of grazing method of rearing farmers, half of the farmers were irregular to this practice due to lack of awareness. The study also reveals that the farmers follow deworming practice which may be either regular or irregular but most of the rearers know the advantages for regularly deworming of animals. It was also found that the farmers used to clean animals regularly or irregularly. The rearers know well about disadvantages of unhygienic animals and hence most of the stall fed rearers cleaned their animals regularly similar findings were found in Jana *et al*. 2014 [4].

Table 1: General characteristics of stall fed and grazing method of sheep and goat rearing farmers

S. No.	Particulars	Stall fed (n=6)	Grazing (n=80)
1.	**Age of the farmers**		
a.	Below 20 years	-	28 (35.00)
b.	20-40 years	3 (50.00)	39 (48.75)
c.	40-60 years	3 (50.00)	10 (12.50)
d.	Above 60 years	-	3 (3.75)
2.	**Educational status**		
a.	Illiterate	1 (16.66)	72 (90.00)
b.	Literate		
i.	Up to SSLC	1 (16.67)	8 (100.00)
ii.	PUC	1 (16.67)	-
iii.	Degree	3 (50.00)	-
3.	**Average family size**		
a.	Small(2-4)members	2 (33.33)	27 (33.75)
b.	Medium(4-6)members	3 (50.00)	42 (52.50)
c.	Large(>7)members	1 (16.67)	11 (13.75)
4.	**Land holding status**		
a.	Marginal (Up to 2.5 acres)	1 (16.67)	53 (66.25)
b.	Small (2.5 to 5 acres)	2 (33.33)	27 (33.75)
c.	Medium (5.01 to 10 acres	2 (33.33)	-
d.	Large (More than 10 acres)	1 (16.67)	-

Note: Figures in the parentheses indicate percentage to the respective total

Table 2: Management practices in stall fed and grazing method of sheep and goat rearing

S. No.	Particulars	Stall fed (n=6)	Grazing (n=80)
1.	**Type of rearing**		
a.	Self	5 (83.33)	69 (86.25)
b.	Contracting	1 (16.67)	11 (13.75)
2.	**Experience in rearing**		
a.	Low -Up to 10 years	3 (50.00)	21 (26.25)
b.	Medium -10-20 years	2 (33.33)	36 (45.00)
c.	High- More than 20 years	1 (16.67)	23 (28.75)
3.	**Farming occupation**		
a.	Primary occupation	4 (66.67)	59 (73.75)
b.	Subsidiary occupation	2 (33.33)	21 (26.25)
4.	**Age at which animals are procured**		
a.	Sheep	2-3 months	-
b.	Goat	2-3 months	-
5.	**Age at which animals are sold**		
a.	Sheep	5-6 months	8 months and above
b.	Goat	5-6 months	8 months and above
6.	**Type of breeds reared**		
a.	Sheep	Kenguri and Chennai red	Local
b.	Goat	Jamunapari and Beetal	Local

Note: Figures in the parentheses indicate percentage to the respective total

Table 3: Operational management practices in stall fed and grazing method of sheep and goat rearing

S. No.	Particulars	Stall fed (n=6)	Grazing (n=80)
1.	**Housing type**		
a.	Shifting tents	-	80 (100.00)
b.	Pucca	6 (100.00)	-
2.	**Feeding Management**		
a.	**Feeding schedule**		
i.	Three times per day	5 (83.33)	-
ii.	Four times per day	1 (16.67)	-
iii.	Round the clock	-	80 (100.00)
b.	**Type of feeding material**		
i.	Fodder		
a.	Green fodder	5 (83.33)	41 (51.25)
b.	Dry fodder	-	-
c.	Both green and dry fodder	1 (16.67)	39 (48.75)
ii.	Concentrates		
a.	Ground nut cake	3 (50.00)	-
b.	Broken maize+ Mineral mixture	2 (33.33)	-
iii.	Other supplements	1 (16.67)	-
iv.	No supplements	-	80 (100.00)
3.	**Drinking water management**		
a.	Two times/day	2 (33.33)	-
b.	Three times/day	3 (50.00)	-
c.	Irregular	1 (16.67)	80 (100.00)
4.	**Labour management**		
a.	Family labour	1 (16.67)	48 (60.00)
b.	Hired labour	4 (66.66)	12 (15.00)
c.	Family and hired labour	1 (16.67)	20 (25.00)
5.	**Type of breeding**		
a.	Natural breeding	5 (83.33)	80 (100.00)
b.	Artificial insemination	1 (16.67)	-

Note: Figures in the parentheses indicate percentage to the respective total

Table 4: Health management practices in stall fed and grazing methods of sheep and goat rearing

S. No.	Particulars	Stall fed (n=6)	Grazing (n=80)
1.	**Vaccination**		
a.	Once in a year	2 (33.33)	27 (33.75)
b.	Twice in a year	4 (66.67)	13 (16.25)
c.	Irregular	-	40 (50.00)
2.	**Control of ecto-parasites**		
a.	Regular	3 (50.00)	29 (36.25)
b.	Irregular	3 (50.00)	51 (63.75)
3.	**Cleaning of animal**		
a.	Regular	4 (66.67)	16 (20.00)
b.	Irregular	2 (33.33)	64 (80.00)
4.	**Deworming**		
a.	Regular	4 (66.67)	13 (16.25)
b.	Irregular	2 (33.33)	67 (83.75)
5.	**Average body weight (kg)**		
a.	Sheep	42 kg	30 kg
b.	Goat	45 kg	34 kg

Note: Figures in the parentheses indicate percentage to the respective total

Conclusion

The farmers associated with stall fed method of rearing were found to be educated as compare to grazing method of rearing farmers. This indicates that educated farmers know well about productivity of stall fed method of sheep and goat rearing and therefore they go for stall fed method of sheep and goat rearing. The stall fed method of sheep and goat rearing in the study area has increased over the time. The reason behind this might be that farmers are getting more awareness about the productivity of stall fed method of sheep and goat rearing. But grazing method of sheep and goat rearing is decreasing because of shrinkage of grazing land. Most of the stall fed rearing farmers were found to be following modern and scientific management practices as compare to the grazing method of rearing farmers who still follow traditional management practices because of their unwillingness due to lack of financial support.

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