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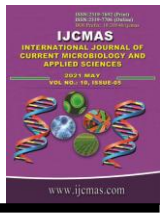

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A Study on Grazing and Feeding Practices Followed by Shepherds in Irrigated and Rainfed Areas in Krishna District of Andhra Pradesh, India

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A B S T R A C T

Present study was conducted on 250 shepherds selected through multistage stratified random sampling technique in irrigated and rainfed areas in Krishna district of Andhra Pradesh, India. Out of the total farmers surveyed, majority of the sheep in both areas were traveling distance of 4-6 km. daily for grazing (45.6 per cent in irrigated area and 48.8 per cent in rainfed area). The mean grazing distance per day was 5.46±0.13 km in irrigated area and 5.8±0.14 km in rainfed area. Most of the shepherds allowed their sheep to graze for 8-10 hrs per day (86.4 per cent in irrigated area and 72 per cent in rainfed area), the mean grazing duration per day was 8.88±0.09 hrs in irrigated area and 9.38±0.12 hrs in rainfed area. Community lands were the major sites of sheep grazing (73.6 per cent in irrigated area and 67.2 per cent in rainfed area). Majority of the sheep farmers following migration in adverse condition like scarcity feed and water (60 per cent in irrigated area and 62.4 per cent in rainfed area).Most of the sheep farmers were practicing the penning (87.2 per cent in irrigated area and 92.8 per cent in rainfed area). No sheep was receiving any extra supplementary feeding in any stage of their life in both areas.

Introduction

Sheep is an important livestock species of rural India. It provides livelihood to most of the rural people. They are the major substitutes for the farmers where the agriculture was not profitable. They are the moving assets for the shepherds as they sell the sheep and goat when they need money. They are closely related to cultural and social lives of poor farmers for whom animal ownership ensures varying degree of sustainable income and economic stability (Misra *et al.*, 2006). The sheep and goats in

India are mainly reared on natural vegetation on common lands. Rarely were they stalling fed. Inspite of enormous technological advancement efforts made for live stock improvement, the status of small ruminants still remained in its primitive form when compared with the progress in dairy and poultry sector (Misra *et al.,* 1997). Majority of the small Ruminants in our country were underfed due to the shrinkage of grazing lands and drying of water bodies. Therefore, there is a felt need for assessment of present grazing and feeding patterns of sheep and the knowledge of shepherds for providing extra feed in various physiological stages of sheep.

Materials and Methods

The present study was conducted in the Krishna district of Andhra Pradesh. Selection of respondents was made by multistage stratified random sampling technique. The district is divided into two areas i.e irrigated and rainfed areas. In the first stage from each area, five mandals were selected. In the second stage from each mandal, five villages were selected at random. In the third stage from each selected villages, 5 sheep farmers were selected forming total respondents of 250 farmers. On the basis of above classification, the study involved a total number of 2 areas, 10 mandals, 50 villages and 250 farmers. The information about the grazing practices followed by the shepherds was collected, with the help of a pre-tested questionnaire. The information pertaining to various activities related to grazing, distance covered during grazing, duration and direction of grazing areas was collected by personal interaction with the shepherds. In addition to the above information, the details of feeding practices followed by the shepherds were also gathered. The information included about the nature of supplementary feeding, concentrate feeding and special feeding practices followed by shepherds was recorded. The information about the migration, details of penning and penning management was also collected with the help of a questionnaire, personal observation and by interaction with the shepherds in both the areas. The data collected were subjected to standard statistical procedures as per Snedecor and Cochran (1994).

Results and Discussion

In the present study, it was evident that majority of the sheep in both areas were traveling a distance of 4-6 km daily during grazing (45.6 per cent in irrigated area and 48.8 per cent in rainfed area), followed by 2-4 km distance (32.8 per cent in irrigated area and 33.6per cent in rainfed area). Few sheep were taken more than 6 km daily for grazing (21.6 per cent in irrigated area and 17.6 per cent in rainfed area). The mean grazing distance per day was 5.46±0.13 km in irrigated area and 5.8±0.14 km in rainfed area. Most of the shepherds allowed their sheep to graze for 8-10 hrs per day (86.4 per cent in irrigated area and 72 per cent in rainfed area), followed by more than 10 hrs of grazing (8 per cent in irrigated area and 21.6 per cent in rainfed area) and 6-7 hours grazing (5.6 per cent in irrigated area and 6.4 per cent in rainfed area). The mean grazing duration per day was 8.88±0.09 hrs in irrigated area and 9.38±0.12hrs in rainfed area. This indicates the habit of returning to their place of living during the night and staying back with their families. The sheep in rainfed area will cover more distance in a food due to feed scarcity. The present findings on grazing time and distance in the study area were comparable with the earlier reports of Metha *et al.,* (1995), Saravanakumar (2003), Rajapandi (2005), Dinesh *et al.,* (2006), Kandasamy *et al.,* (2006) and Rao *et al.,* (2013). The village water ponds were serving as a major source of water for the sheep in both areas. Majority of the sheep farmers regularly changed the

direction of grazing (97.6 per cent in irrigated area and 95.2 per cent in rainfed area). The practice of changing the direction of grazing indicated that the sheep farmers were avoiding overgrazing and were aware of sources for grazing.

Community lands were the major sites of sheep grazing (73.6 per cent in irrigated area and 67.2 per cent in rainfed area), followed by private lands (26.4 per cent in irrigated area and 32.8 per cent in rainfed area). These results were in agreement with the reports of Barhat *et al.,* (2000), Gokhale *et al.,* (2002), Rai and Singh (2004) and Yadav and Tailor (2010). About 85.6% sheep in irrigated area and 94.4% sheep in rainfed area were grazing on crop leftovers.

No sheep was receiving any extra supplementary feeding in any stage of their life in both areas. Some farmers in the study area were feeding extra supplementary feed like jowar grains, broken rice and concentrate mixture to the breeding rams (13.6 per cent in irrigated area and 23.2 per cent in rainfed area). Some farmers in irrigated area especially in Machilipatnam mandal of irrigated area were cultivating fodder crops like pillipesara (*Vigna trilobata*), Co-3 to feed the sheep (13.6 percent). About 48.8% shepherds in irrigated area and 77.6% shepherds in rainfed area were feeding their sheep with salt. None of the farmers were providing the mineral mixture to sheep.

Majority of the sheep farmers following migration in adverse condition like scarcity feed and water (60 per cent in irrigated area and 62.4 per cent in rainfed area). Remaining were stationary flocks. Sheep in irrigated area were migrated in rainy season as all the fields would be having crops and chances of grazing were less. Sheep in rainfed area were migrated between the months of summer (February to June) due to scarcity feed and water. Similarly, Suresh *et al.,* (2008) reported that the short term migration of sheep was practiced by 23% farmers in Rajasthan and Rao *et al.,* (2013) reported that the short term migration of sheep was practiced by72.81% farmers in North Coastal districts of Andhra Pradesh. Whereas, Shinde and Singh (1995) indicated that in arid and semi-arid regions 86 and 67% of sheep were migratory, respectively. In these stationary flocks roadside grazing, canal bank grazing, crop harvest residues, top feeding, sown fodder crops etc. were the source of feed for sheep. Availability of water and feeding resources, successive droughts, cropping pattern in the locality and demand for night penning in agricultural fields were reasons for migration of sheep.

Majority of the sheep in irrigated area were migrated in rainy season as all the fields would be having crops and chances of grazing were less. Sheep in rainfed area were migrated between the months of summer (February to June) due to scarcity feed and water. Dixit *et al.,* (2005) reported that the Gaddi tribes in Jammu and Kashmir owning Rampur bushair sheep followed migration during summer months. Whereas, Kuldeep *et al.,* (2006) observed that in Rajasthan sheep flocks were on migration for seven months in a year.

Rajapandi (2005) also reported that most of the flocks (92.50%) of Coimbatore sheep migrated in all directions depending on availability of grazing lands and harvested paddy fields with a migratory distance of approximately 100 to 200 km. Most of the sheep farmers were practicing the penning (87.2 per cent in irrigated area and 92.8 per cent in rainfed area). Common land development with the participation from the shepherds and constructing the water troughs with the help of MGNREGS, where the ground water level was significantly higher will reduce the practice of migration.

Table.1 Grazing and feeding practices followed by shepherds in irrigated and rainfed areas of Krishna district.

S.No	Grazing & feeding practices		Irrigated area		Rainfed area		Total	
			No.of farmers	%	No.of farmers	%	No.of farmers	%
1	Grazing distance	2-4 kms	41	32.8	42	33.6	83	33.2
		4-6 kms	57	45.6	61	48.8	118	47.2
		6-8 kms	27	21.6	22	17.6	49	19.6
2	Grazing duration	6-7 hrs	7	5.6	8	6.4	15	6
		8-10 hrs	108	86.4	90	72	198	79.2
		More than 10 hrs	10	8	27	21.6	37	14.8
3	Source of water for grazing sheep	Pond	125	100	125	100	250	100
		Well	0	0	0	0	0	0
		Hand pump	0	0	0	0	0	0
		Tap	0	0	0	0	0	0
4	Direction of grazing	One side	3	2.4	6	4.8	9	3.6
		Changed regularly	122	97.6	119	95.2	241	96.4
5	Routine grazing lands	Private Lands	33	26.4	41	32.8	74	29.6
		Common Lands	92	73.6	84	67.2	176	70.4
6	Grazing on crop leftovers	Yes	107	85.6	118	94.4	225	90
		No	18	14.4	7	5.6	25	10
7	Speciall feeding of pregnant	Yes	0	0	0	0	0	0
		No	125	100	125	100	250	100
8	Special feeding of	Yes	0	0	0	0	0	0

	nursing mother	**No**	125	100	125	100	250	100
9	**Special feeding of**	**Yes**	17	13.6	29	23.2	46	18.4
	rams	**No**	108	86.4	96	76.8	204	81.6
10	**Supplementary**	**Yes**	0	0	0	0	0	0
	feeding	**No**	125	100	125	100	250	100
11	**Cultivation of fodder crops**	**Yes**	17	13.6	0	0	17	6.8
		No	108	86.4	125	100	233	93.2
12	**Salt feeding**	**Yes**	61	48.8	97	77.6	158	63.2
		No	64	51.2	28	22.4	92	36.8
13	**Mineral mixture**	**Yes**	0	0	0	0	0	0
	feeding	**No**	125	100	125	100	250	100
14	**Migration of**	**Yes**	75	60	78	62.4	153	61.2
	flock	**No**	50	40	47	37.6	97	38.8
15	**Migration period**	**Rainy Season**	75	60	0	0	75	30
		Summer	0	0	78	62.4	78	31.2
16	**Sheep penning**	**Practiced**	109	87.2	116	92.8	225	90
		Not practiced	16	12.8	9	7.2	25	10
17	**Water during**	**Yes**	125	100	125	100	250	100
	penning	**No**	0	0	0	0	0	0
18	**Intervals of**	**Once**	45	36	99	79.2	144	57.6
	watering	**Twice**	68	54.4	26	20.8	94	37.6
		Thrice	12	9.6	0	0	12	4.8

All the farmers were providing water during penning in both areas and majority of the farmers in irrigated area were watering the sheep twice in a day (54.4 per cent). Whereas, watering the sheep only once a day was practiced by majority of the farmers in rainfed area (79.2 per cent) during penning.

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