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Research Article

PATTERN OF MIGRATION FOLLOWED BY MIGRATORY SHEPHARDS OF WESTERN MAHARASHTRA

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Abstract: The present study was carried out in the western part of Maharashtra state, India. Two districts namely Pune and Sangli were selected purposively for the study because a greater number of migratory shepherds inhabited in these districts and sheep rearing is one of the major activity of the farmers. A total of 120 respondents were selected by purposive random sampling from Pune and Sangli districts of western parts of Maharashtra. The data was collected through pretested structured interview schedule. Analysis of the study has been made by using appropriate statistical methods. Study revealed that majority of migratory shepherds were under middle level of socioeconomic status. The migratory pattern of migratory shepherds in study area was studied in three parameters *viz*. route of migration, period of migration and distance covered during migration. The average distance covered by migratory shepherds in study area was 194.72±13.09 km. The minimum distance covered during migratory period was 122 km and maximum distance covered during migration was 362 km. Capacity building of migratory shepherds through appropriate awareness campaign is essential to strengthen the level of adoption of scientific sheep husbandry practices.

Keywords: *Migratory Pattern, Migratory shepherds, Profile of migratory shepherds*

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Introduction

In India, livestock sector plays key role in national economy. Majority of the rural households who rears livestock are small, marginal and landless farmer, they all were depends upon livestock for their livelihoods. Contribution of small ruminants is more in rural economy of arid and semi-arid areas of India as well as in Maharashtra. Among the small ruminants, Maharashtra has about 25.80 lakh sheep, which is the 6th largest state in India. Sheep rearing is the major occupation in western parts Maharashtra. Maharashtra has a population of around 25.80 lakh sheep, which is the 6th largest state-wise sheep population in India and is responsible for 3.97% share of the total sheep population of our country [1]. Rearing of sheep play an important role in the economy of India in general and for sustainable livelihood of poor people particularly those one, who live in arid and semi- arid areas of India as well as Maharashtra because of inherent risk involved in the crop farming due to uncertainty of rainfall and occurrence of recurrent droughts. Sheep are unique among domestic animals because of their adaptability to the adverse conditions. The majority of the households in the rural areas are below the poverty line. Sheep rearing has been wedged into agriculture mostly by grazing animals on stubble and grasses etc. It is most appropriate species for utilizing spare vegetation, tree tops, bushy and thorny trees and weeds most efficiently. They grow faster and don't need expensive housing system, easy and rapid multiplication is possible and they also provide self and family employment. Sheep farming is more suited to the most of marginal and nomadic people having minimum input and employment opportunities. In fact, there is no substitute for sheep as a class of livestock for utilizing waste lands. Sheep farming is a provision of supplementary and complementary enterprise for utilization of surplus farms resources and for increasing production efficiency. Due to increase population, pressure of land sheep farming is difficult for marginal farmer in their native area. So, maximum farmers are migrated in nearest talukas or districts for searching of green fodder and water for rearing of sheep. Sheep migration' may be temporary and permanent, depending on severity of drought and availability of grass. In Maharashtra state maximum sheep rearing is done with temporary or seasonal migration. In general, migratory shepherds followed certain traditional practices but the modern scientific practices do play a very important role in improving the production. The improved sheep husbandry practices make it more sustainable and profitable enterprise.

Materials and Methods

The present study was carried out in the western part of Maharashtra state. Maharashtra state was located in the western part of peninsular India. It is situated central western part of country. Western region of Maharashtra state was purposively selected for the present study due to higher population of migratory shepherds. Maharashtra state comprises 35 districts out of these, seven districts namely Pune, Satara, Sangli, Solapur, Kolhapur, Ahmednagar and Nashik comes under Western region. Out of these, two districts namely Pune and Sangli were selected purposively for the present study because a greater number of migratory shepherds inhabited in these districts and sheep rearing is one of the major activities of the farmers. A total of 60 migratory shepherds were selected from each district by purposive random sampling. They were interviewed with the help of interview schedule keeping in view the objectives of the study.

Thus, total 120 respondents (migratory shepherds) were selected from both districts for the study. Analysis of the study has been made by using appropriate statistical procedure like frequency, percentage, mean, standard deviation and coefficient of correlation.

Results & Discussion

Socioeconomic Profile of Migratory Shepherds

Age

It was revealed that majority of the Shepherds (61.67%) fall into middle age group followed by young age group (20%) and old age group (18.33%). Distribution of respondents according to the age is presented in [Table-1]. Involvement of shepherds belonging to middle age is obvious in different activities associated with migratory sheep, husbandry and associated practices by virtue of their physical fitness. Since, they can smoothly shoulder the responsibility [2, 3]. Most of the shepherds studied by them were from followed by old and young age group. In another study from Thanjavur district of Tamil Nadu maximum sheep farmers belonged to 30 to 40 Results years of age group. More number of shepherds belonging to middle age group (57.50%), followed by old age (26.67%) and young age (15.83%)in Mahabubnagar district of Telangana state [4].

Education

The educational status of migratory shepherds is presented in [Table-1]. Most of the migratory shepherds were illiterate (60%), followed by shepherds attended secondary schooling (17.5%), primary schooling (15%), higher secondary education (5.83%), and least at college level (1.67%). The increased percentage of illiteracy in migratory shepherds could be attributed to the fact that traditionally, least priority must have been given to the education by them. Seasonal migration may also be hindrance in acquiring education. Larger population of sheep farmers was illiterate (74.65%) followed by literate (25.35%) shepherds from Telangana Zone of Andhra Pradesh. Involvement of illiterate shepherds in sheep rearing has also been observed by another researcher previously [5-6].

Caste

Caste based observation were made to know the involvement of different communities in migratory type of sheep husbandry. It was observed that almost all migratory shepherds were from Nomadic Tribe category. In Maharashtra, sheep husbandry is a traditional and predominant occupation of shepherds of Dhangar community [7, 8]. Dhangar is traditionally semi-nomadic pastoral society primarily located in the state of Maharashtra [7]. Sheep is one of the most important livestock species adopted by Dhangar community in Maharashtra state [8].

Family size

Family size was evaluated and presented in [Table-1]. It was observed that most of them had medium family size (63.33%) followed by small family size (31.67%). Hardly five percent migratory shepherds were having large family size. Medium family size was a group of members five to eight members which includes spouse, children and their parents. Most of the shepherds were living with their parents hence maximum shepherds had medium family size. Medium family size was helpful for them during migration period. Most of the sheep farmers (71.53%) had medium family size followed by large (21.01%) and only (7.14%) had small family size in Telangana Zone of Andhra Pradesh [2, 9, 4, 6].

Occupation

It was observed that main occupation of the respondents was sheep farming (100%). Among subsidiary occupation, shepherds were involved in agriculture (81.67%), goats rearing along with sheep (11.67%) and dairy farming (6.66%). The main occupation of all shepherds was sheep farming since it is traditional occupation and sheep husbandry as a primary occupation of shepherds from other region of India [10,4]. Majority of shepherds were involved in agriculture as a subsidiary occupation due to holding of agricultural land. Some of the shepherds reared goat along with sheep as a subsidiary occupation for additional income. Sheep rearing as primary occupation of Shahabadi sheep rearers (69.52%), followed by agriculture (25.71%) and other occupation (4.76%) in Bihar [11].

Table-1 *Socioeconomic Profile of Migratory Shepherds*

SN	Character	Category	n (120)	Percentage
1	Age	Young age	24	20.00
		Middle age	74	61.67
		Old age	22	18.33
2	Education	Illiterate	72	60.00
		Prima	18	15.00
		Secondary	21	17.50
		Higher secondary	7	5.83
		College	2	1.67
		Illiterate	72	60.00
3	Caste	NT(Nomadic tribe)	120	100.00
4	Family size	Small	38	31.67
		Medium	76	63.33
		Large	6	5.00
5	Occupation	Main	120	100.00
		Subsidiary		
		Agriculture	98	81.67
		Goat rearing	14	11.67
		Dairy farming	08	6.66
6	Type of house	Kutcha house	76	66.33
		Pucca house	44	36.67
7	Land holding	Landless	3	2.50
		Marginal	52	43.33
		Small	38	31.67
		Semi medium	26	21.67
		Medium	1	0.83
		Large	0	0.00
8	Material possession	Low (up to 3)	36	30.00
		Medium (4 to 5)	79	65.83
		High (above 5)	05	4.67
9	Annual income	Low (up to Rs.55,000)	14	11.67
		Medium (Rs.55001 to 133000)	87	72.50
		High (above 133000)	19	15.83
10	Experience	Low(< 16 years)	23	19.17
		Medium(16 to 37 years)	78	65.00
		High(> 37 years)	19	15.83
11	Flock size	Small (up to 50)	17	14.17
		Medium (51 to 158)	87	72.50
		Large (above 158)	16	13.33
12	Social participation	No member of any organization	34	28.33
		Member of organization	86	71.67
		Office bearer	00	00.00
13	Extension contact	Low (up to 8)	26	21.67
		Medium (9-14)	77	64.16
		High (above 14)	17	14.17

Type of house

Relatively a greater number of shepherds (66.33%) lived in kutcha house and remaining shepherds (36.67%) were lived in pucca houses during their non-migratory period. Majority migratory shepherds living in kutcha house might be due to their maximum period passed in migration and they use house only in rainy season for shelter. Majority shepherds possessed kutcha house followed by pucca house. Shepherds from Paschim Midnapur district of West Bengal had kutccha house (44.60%) followed by hut (24.46%), mixed type houses (17.27%) and pucca house (13.67%) [12].

Land holding

Majority of the respondents (43.33%) were marginal farmers followed by small farmers (31.67%), semi medium farmers (21.67%), landless farmers (2.50%) and medium farmers (0.83%) respectively. The size of land holding might be decreasing due to division of land holding along the generations and change of integrity of family hence most of the shepherds were marginal farmers.

revealed that majority of sheep farmers were marginal (45.66%) followed by small (33.16%), landless (14.24%) and very few (6.94%) belonged to the large farmer's category [10,5].

Material Possession

[Table-1] indicated that maximum respondents belonged to medium category (65.83%) of material possession followed by low category (30%) and high category (4.67%). High frequency of medium category of material possession might be due to moderate annual income and increase in standard of living of the respondents [3, 13]. They observed that 70.83 percent of the shepherds belonged to medium material possession category, subsequently 22.5 percent in low, and 6.67 percent in high categories in Srikakulan district of Andhra Pradesh.

Annual income

Majority of respondents (72.50%) had medium annual income group followed by (15.83%) high income group and (11.67%) low income group, presented in [Table -1]. Results showed that average annual income of the migratory shepherd in the study area was Rs. 94,024/-. The migratory shepherds were mainly depending upon sheep farming as a traditional occupation. Sheep were the main source of income to the migratory shepherds. In Maharashtra most of the sheep farmers (44%) had annual income ranged between Rs.50000-100000 followed by (26.66%) less than Rs. 50,000/- and more than Rs.100000/- [2, 14]. They revealed that 85.76 percent of farmers generated medium annual income (54,957 to 90,750/-) and 10.24 percent farmers had high annual income above 90,750/- in Telangana region. Majority of sheep farmers had medium annual income.

Experience

It was observed from [Table-1], that majority of the respondents (65.00%) had medium level of experience followed by low level of experience (19.17%) and high level of experience (15.83%). Sheep farming is the main family occupation of shepherds from several decades therefore maximum farmers had 16 to 37 years of experience [15]. In sheep farming 64.58 percent of sheep farmers had medium experience (17 to 41 years) in sheep farming [16-18].

Flock size

As depicted [Table-1], most of the respondent's rear medium (72.50%) flock size of sheep followed by small (14.17%) and large flock size (13.33%) [18]. The maximum shepherds reared medium (51-158) size of flock which might be due to migratory pattern and source of sufficient income. Parallel findings noted wherein 41.34 percent farmer maintained small sized flocks consisting of 50 to 100 sheep, 31.73 percent shepherds kept medium sized flocks with 101 to 150 animals [10].

Social participation

Present finding recorded that majority of respondents (71.67%) were the members of one organization followed by non-member of any organization (28.33%) and none of the respondents was office bearer. It was revealed that most of them were member of Punyaslok Ahilyadevi Maharashtra Mendhiva Sheli Vikas Mahamandal, Pune. Establishment of regional mahamandal wherein all the sheep rearing farmers are brought under a single frame that aims to protect the interest of the group. Majority of 78.41 percent of sheep farmers had membership of one organization followed by member of more than one organization (19.42%), office holder of any organization (1.44%) and wider public leader (0.72%) in terms of social political participation in Paschim Midnapur district of West Bengal [12].

Extension contacts

The extension contact of the migratory shepherds was measured and presented in [Table-1]. It was observed that majority of the respondents (64.16%) had medium level of extension contacts followed by low level (21.67%) and high level (14.17%). Result revealed that most of the respondents in study area had medium level of extension contacts. They used formal and informal sources of information to take care of sheep husbandry practices In the study conducted on farmer's preparedness towards sheep health care with specific reference to vaccination in Andhra Pradesh and recorded that three fourth (75%) of the respondents had medium level of extension contact, followed by high (17.22%) and low level of extension contact [19]. In Sangli and Kolhapur district of Maharashtra, majority of the respondents (97%) used other sheep owner for consultation followed by village quack (62%) and veterinary officer (51%) [8]. In case of mass media sources, mobile phones were the major source of information (72%) followed by animal fair (66%) and listening radio (17%).

Migratory Pattern of Shepherds of Western Maharashtra

Migratory shepherds were migrated seasonally to overcome the problem of scarcity of fodder and water at native place. Migration is a traditional solution to seasonal unavailability of feed and water resources. The penning is also considered as one of the major reason for migration because agriculturists hire the flock during night time to their fields for manures to increase the soil fertility. This practice is the source of income for migratory shepherds. The migratory pattern of migratory shepherds in study area was studied in three parameters viz. route of migration, period of migration and distance covered during migration.

Routes of migration

In the study area total 25 routes were identified. Mostly they migrated from Mudhale village of Baramati tehsil to Bhor through various villages. Shepherds migrated up to Rajapur village of Bhor tehsil only. Shepherds from Shendgewasti village migrated up to Velhe and Bhor tehsil. Shepherds from Supe village also migrated towards Velhe and Bhor tehsil through various villages. Shepherds from Korhale budruk migrated in Bhor tehsil. Shepherds from Jogwadi village migrated up to village Nangaon, tehsil Daund, village Manjri budruk tehsil Haweli and village Tamhini, tehsil Mulshi. Shephards from Urali kanchan migrated up to village Ranje, Bhor tehsil. Shepherds from Mawadi supe migrated up to Bhugaon, tehsil Mulshi. Shepherds from Dahitane migrated up to village Apti, tehsil Bhor through various villages. The above sixteen migratory routes were recorded in the study area of district Pune. In Sangli district, shepherds from Vibhootwadi migrated up to Kundal village, tehsil Palus and up to tehsil Sangli. Shepherds from Zare village migrated up to tehsil Kadegaon. Shepherds from Dadaswadi migrated up to village Vairag, tehsil Barshi, Shepherds from Umbergaon village, migrated up to village Vairag, tehsil Barshi, and village Deodi, tehsil Mohol. Shepherds from Sonyal village of Jath tehsil migrated up to village Shirgaon, tehsil Pandharpur. These nine migratory routes were recorded in the study area of district Sangli. These routes were preferred by the migratory shepherds due to availability of grazing land. In the analysis of sheep production systems in North Coastal Zone of Andhra Pradesh, identified sixteen migratory tracks originate from North Coastal Zone of Andhra Pradesh [20]. A total number of seventy-eight migratory tracts identified in southern Tamil Nadu. They stated that migratory routes were almost regular over the years in the study area [21].

Migratory Period

It was observed that maximum shepherds were started their migration in the month of November and returned back in the month of July. Some of the shepherds migrated in the month of October and returned back in the month of June. Present findings revealed that for migration, October-November to June-July was mostly preferred by shepherds. The main reason for migration of sheep flocks was the scarcity of feed and water resources and traditional practice. They started their migration at the end of winter and returned back on the onset of monsoon. The Gaddi tribes in Jammu and Kashmir owning Rampur bushier sheep followed migration during summer months. [22,23]. In Rajasthan sheep flocks followed migration for seven months in a year [24]. In a benchmark survey on the migratory pattern of Nellore sheep, average days of migration in the identified tracks was 91.38±8.04 to cover a distance of 84.03+6.33 km [25].

Total distance covered during migration

Total distance covered during migration was referred to the distance covered from starting place of migratory shepherds to the last destination and vice versa. It was revealed that the average distance covered by the migratory shepherds in study area was 194.72±13.09 km.

The minimum distance covered during migratory period was 122 km and maximum distance covered during migration was 362 km. In North Coastal Zone of Andhra Pradesh, the mean duration of migration was relatively proportional to the distance the sheep flocks have travelled. In a benchmark survey on the migratory pattern of Nellore sheep eight major (above 90 km distance) and ten minor (below 90 km) migratory tracks were identified in Nellore and Prakasam Districts of Andhra Pradesh [25]. 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 in Coimbatore and the observations were recorded [26]. In Himachal Pradesh, the final destinations, number and duration of halts of flock owners during migration were not fixed [27].

Conclusion

Migratory shepherds under study had medium level of socioeconomic profile. They had medium level of extension contacts and least social participation. Shepherds were migrated mainly due to shortage of fodder and water resources at native place. They were migrated during October - November and returned back during June – July annually that depends upon the onset of monsoon. Migratory pattern followed by migratory shepherds were same for numerous years. In the study area total 25 routes of migration were found. Migratory shepherds change their routes according to availability of fodder and water resources. Shepherds started migration during October-November and they were returned back in the month of June-July. The average distance covered by migratory shepherds was 194.72 km. Capacity building of migratory shepherds through organization of appropriate training and awareness campaign is obligatory to amplify the level of adoption of sheep husbandry practices.

Application of research: This study will be helpful to display present situation of migratory shepherds in western parts of Maharashtra and it will also facilitate policy making decisions with special reference to the migratory shepherds. Findings will be of direct benefit to Livestock Development Officers and other concerned government officers while extending veterinary services to the migratory shepherds.

Research Category: Veterinary & Animal Husbandry Extension

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Study area / Sample Collection: Pune and Sangli

Animal name: *Ovis aries*

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