



E-ISSN: 2320-7078

P-ISSN: 2349-6800

www.entomoljournal.com

JEZS 2020; 8(4): 2400-2406

© 2020 JEZS

Received: 05-05-2020

Accepted: 10-06-2020

Ashaq Manzoor

Division of Livestock Production Management, Faculty of Veterinary Science and Animal Husbandry, Sher-e-Kashmir University of Agricultural Sciences and Technology, Kashmir, Shuhama, Alusteng, Srinagar, Jammu and Kashmir, India

HM Khan

Division of Livestock Production Management, Faculty of Veterinary Science and Animal Husbandry, Sher-e-Kashmir University of Agricultural Sciences and Technology, Kashmir, Shuhama, Alusteng, Srinagar, Jammu and Kashmir, India

Tahir Nazir

Division of Livestock Product Technology, Faculty of Veterinary Science and Animal Husbandry, Sher-e-Kashmir University of Agricultural Sciences and Technology, Kashmir, Shuhama, Alusteng, Srinagar, Jammu and Kashmir, India

Anees Ahmad Shah

Division of Livestock Production Management, Faculty of Veterinary Science and Animal Husbandry, Sher-e-Kashmir University of Agricultural Sciences and Technology, Kashmir, Shuhama, Alusteng, Srinagar, Jammu and Kashmir, India

Towseef Akram

Division of Animal Biotechnology, Faculty of Veterinary Science and Animal Husbandry, Sher-e-Kashmir University of Agricultural Sciences and Technology, Kashmir, Shuhama, Alusteng, Srinagar, Jammu and Kashmir, India

Insha Afzal

Division of Livestock Production Management, Faculty of Veterinary Science and Animal Husbandry, Sher-e-Kashmir University of Agricultural Sciences and Technology, Kashmir, Shuhama, Alusteng, Srinagar, Jammu and Kashmir, India

Asra Khurshed

Division of Livestock Production Management, Faculty of Veterinary Science and Animal Husbandry, Sher-e-Kashmir University of Agricultural Sciences and Technology, Kashmir, Shuhama, Alusteng, Srinagar, Jammu and Kashmir, India

Corresponding Author:**Ashaq Manzoor**

Division of Livestock Production Management, Faculty of Veterinary Science and Animal Husbandry, Sher-e-Kashmir University of Agricultural Sciences and Technology, Kashmir, Shuhama, Alusteng, Srinagar, Jammu and Kashmir, India

Socio-economics of sheep rearers in Anantnag district of Jammu and Kashmir

Ashaq Manzoor, HM Khan, Tahir Nazir, Anees Ahmad Shah, Towseef Akram, Insha Afzal and Asra Khurshed

Abstract

The survey was conducted to study the socio-economic profile of sheep rearers in all the 6 tehsils (Anantnag, Bijbehara, Dooru, Pahalgam, Shangus and Kokernag) of district Anantnag in Kashmir valley. A total of 37 villages with 370 respondents were surveyed through a pre-structured questionnaire and face to face interview of these respondents. Results revealed that majority of respondents had joint type (55.68%), medium sized (6-9) families (66.22%), agriculture as primary occupation (45.41%), land holdings of marginal type (11.60±0.30 kanals/0.59 hectare), income of Rs. 11,000-20,000/month (46.49%), age above 40 years (88.66%), illiteracy (44.06%), sheep rearing experience above 10 years (81.07%), women involvement (67.30%), flock strength (38.73±0.47), 0-2 cattle (88.38%) and goats (13.25% vs. 16.18%). It is concluded that illiterate, lower income group, middle aged, marginal land holders having joint and medium size families with agriculture as primary and sheep farming as secondary occupation with significant involvement of women in sheep rearing practice.

Keywords: Socio-economic, agriculture, sheep, Anantnag

Introduction

Sheep constitute an integral component of the temperate ecosystem of the Jammu and Kashmir. Sheep farming constitutes the only source of income for about 20% of the population of the state, as it is less capital-intensive requiring small land, low initial investment and operational costs^[1, 2]. Sheep population of the state (3.24 million) represents approximately 4.38% of the sheep population of India (74.26 million) and approximately 39% of the total livestock population (8.31 million) of the state,^[3]. The state in general and districts Anantnag in particular is ideally suited for sheep and goat rearing owing to its agro-climatic conditions and plenty of grasslands, lush pastures and orchards available. Anantnag has sheep population of 2.38 lac representing 2.02 lac crossbred and 0.36 lac local sheep which produce mutton and wool to the tune of 4.40 lac and 13.71 lac Kgs, respectively^[4]. The state produces 33.62 thousand tones of mutton against an annual demand of 56 thousand tones resulting in a gap of 22.42 thousand tones of mutton. To bridge this gap, the state is importing approximately 14.50 lac sheep annually. The total flight of capital on account of import of livestock products is to the extent of Rs. 1400 crores with import of mutton being major contributor to this flight of capital^[5]. Keeping in view the above mentioned facts, present study was proposed to study the Socio-economic profile of sheep rearers in Anantnag district of Jammu and Kashmir.

Material and Methods

The study was conducted in Anantnag district of Jammu and Kashmir. The district is located at an altitude of 1500 to 2000 meters above mean sea level with longitude of 74.89°- 75.14° and latitude of 33.87° - 33.72°. Owing to proximity of peer panchal range, which stretches in its South and South-East, the districts have Temperate cum Mediterranean type of climate in summer and relatively cold in winter than other districts of the valley. Lack of studies/literature on various aspects of sheep rearing in the district lead to take this work. Proportionate random sampling was followed wherein 10% of the villages from each tehsil and 10 respondents from each village were considered for the survey. A total of 37 villages with 370 respondents were surveyed through a pre-structured questionnaire, face to face interview of these respondents and personal visit of sheep sheds/ shelters, pastures and orchards and data was collected.

Statistical analysis: The data collected during the period of study was coded, compiled systematically, tabulated and subjected to statistical analysis (average, percentage, Z-test) as per [6] using Statistical Package for Social Sciences (SPSS-20) computer programme.

Results and Discussion

Family strength and family type

The results of the survey about family strength have been presented in table- 1. Results revealed that majority (66.22%) of sheep rearers in district Anantnag were having medium sized families with 6-9 members followed by those having large family (22.10%) with more than 9 members/family. A comparatively smaller proportion (13.78%) of sheep rearers were having small families comprising of less than 6 members/ family. Shangus region of the district was having significantly ($p<0.05$) higher proportion (73.33%) of sheep rearers with medium size families than Kokernag (64.00%) and Pahalgam (61.43%). Similarly, the proportion of sheep rearers having small families was significantly ($p<0.05$) higher in Anantnag region (24.55%) of the district than in Pahalgam (15.71%). Similar studies among sheep rearers elsewhere have reported results similar to present findings [7, 8]. Medium and large family provides better work force in comparison to small family and helps in division of labour, thereby managing the resources in efficient manner and increases the economic security of the families.

The proportion of sheep rearers having Joint type family was significantly ($p<0.05$) higher in Anantnag (62.72%), Dooru (63.33%) and Bijbehara (54.00%) than in Shangus (40.00%) and Kokernag (36.00%) tehsils in district Anantnag. Results of the present study were in agreement with earlier findings wherein joint family has been reported to be the predominant family type among sheep rearers in different parts of the country [9, 10]. Joint type families possess large family size, thereby a good work force which could be mobilized for division of labor, sharing of work load besides securing the economic sustainability. Moreover, it prevents the fragmentation of the landholdings in agrarian community whose prime activity besides sheep rearing is agriculture and its related activities.

Primary occupation of sheep breeders

The results have been presented in table- 2 for ease of interpretation. The results indicate that the primary occupation of majority (45.41%) of sheep rearers in district Anantnag was agriculture followed by agriculture+sheep farming (16.22%), livestock (12.71%), sheep farming (8.38%) and Govt. Service (6.49%). The proportion of sheep rearers having agriculture as the primary occupation was significantly ($p<0.05$) higher in Shangus (63.34%) than Anantnag (48.19%), Pahalgam (20.00%), Kokernag (42.00%) and Bijbehara (38.00%). The proportion of sheep rearers sheep farming as primary occupation was significantly ($p<0.05$) higher in Bijbehara (14%) than in Anantnag (5.45%) and Dooru (5.00%) tehsils. The results of the study were in agreement with earlier findings [11, 12] wherein, agriculture has been reported as main occupation of sheep rearers in other parts of the country. However, contrary to present findings, earlier studies have also reported sheep farming [13], household work [8] and livestock rearing [14] as the main occupation of sheep rearers elsewhere in the country. Agriculture in agrarian society is the prime source of livelihood, sustainability and economic security. Crop

farming serves the basic needs of food for humans and its residues for animals. Land in study areas is mostly plain and quite suitable for agriculture and related activities. Further abundance of good quality pastures and other common property resources (CPR) makes it an ideal ground for sheep and other livestock. Thus it offers better opportunity to its residents to earn their livelihood through agriculture and its related activities and livestock viz; sheep, cattle, goats, etc.

Secondary occupation of sheep breeders

The results have been presented in table- 3. It is evident from the results that secondary occupation of majority (31.36%) of sheep rearers in district Anantnag was Agriculture+sheep farming followed by Agriculture+Horticulture (28.65%), sheep farming (19.46%) and Agriculture+ livestock (7.84%), respectively. The proportion of sheep rearers having a combination of agriculture and sheep rearing as their secondary occupation was significantly ($p<0.05$) higher in Shangus (40.00%) than Anantnag (21.82%) and Dooru (28.34%). The results of the study were in agreement with earlier findings [9] wherein agriculture as main occupation and sheep farming as secondary occupation of sheep rearers has been reported in other parts of the country. However, contrary to present findings, earlier studies have also reported sheep farming [13], livestock rearing [14] and labour followed by agriculture [10] as the main occupation instead of secondary occupation of sheep rearers elsewhere in the country. Rearing of sheep along with the agriculture as an occupation is due to its low cost of production, short generation interval, quick returns, strong traditional association with livestock keeping. Moreover, the distinguished ability of sheep to utilize natural grasses, crop stubbles and tree leaves makes it an ideal combination with agriculture as a source of livelihood. Further the topography of south Kashmir under temperate cum Mediterranean agro-climatic conditions with abundance of common property resources and alpine pastures makes it an ideal ground for sheep farming under low input production system.

Land holding of sheep rearers

The details regarding land holding of sheep rearers have been presented in table- 4 The results revealed that sheep rearers in Anantnag districts were of marginal type with an average land holding of 11.60 ± 0.30 kanals (0.59 hectare) in Anantnag, wherein sheep rearers from Bijbehara (15.12 ± 0.66) and Kokernag (14.22 ± 0.73) were having significantly ($P<0.05$) higher land holding than that of Anantnag (9.26 ± 0.45), Dooru (11.01 ± 0.68) and Shangus (7.99 ± 0.82). Results similar to present findings have also been reported among sheep rearers in Malaysia [15], Mandya district of Karnataka [11], Srinagar district of J and K [9], wherein majority of sheep rearers have been reported to be marginal type in terms of land holding. Land being the basic asset in agrarian society serves a base for agriculture, crop production, fodder production, grazing field and other necessities of sustenance. Marginal land holding of the sheep rearers has increased their reliance on common property resources for grazing their animals. Although such resources in the region do support a large chunk of livestock, their reduction as a result of population explosion and occupation by forces has virtually stripped off the livestock particularly sheep of their natural right of grazing.

Household income of sheep breeders

The results regarding household income of the sheep rearers have been presented in table- 5. Results revealed that income of majority (46.49%) of sheep rearers was in the range of Rs. 11,000-20,000, followed by <10,000 Rs. in 41.63%, 21,000-30,000 Rs. in 9.19% and >30,000 Rs. in 2.71% of sheep rearers. The proportion of respondents with an annual income of Rs.11,000-20,000/ month in district Anantnag was significantly ($p<0.05$) higher in Pahalgam (64.29%) than in Kokernag (52.00%), Bijbehara (26.00%), Shangus (26.67%), Dooru (41.67%) and Anantnag (33.64%). The proportion of sheep rearers in the lesser income group (<10,000 Rs/month) was significantly ($p<0.05$) higher in Anantnag (41.63%) than Pulwama (31.71%). Similarly, the proportion of respondents in the lesser income group (<10,000 Rs/month) in district Anantnag was significantly ($p<0.05$) higher in Bijbehara (60.00%) and Shangus (56.67%) than in Kokernag (42.00%), Dooru (48.34%), Pahalgam (32.86%) and Anantnag (47.28%) tehsil. Results similar to present findings have also been reported among sheep rearers in Bandipora district of J and K [16]. Contrary to present findings, majority of sheep rearers in Nellore districts of Andhra Pradesh [13].

Age status of sheep breeders

The results regarding age of the sheep rearers have been presented in table- 6. The results revealed that majority of sheep rearers in Anantnag district were above 40 years of age (88.66%). Majority (28.92%) of sheep rearers in district Anantnag were in age group of 61-70 years, followed by 51-60 years (28.65%), 41-50 years (25.95%), 31-40 (8.92%), >70 years (5.14%), 21-30 years (2.44%), respectively. Similar study in Bandur sheep rearers of Karnataka [11] and Kashmir Merino sheep rearers in Srinagar district of J and K [9] has revealed that majority belonged to the age group of 45-65 years and 40-60 years, respectively. Higher proportion of sheep rearers in the age group of 50 years and above could be due to age old tradition of sheep rearing as a subsidiary source of income. Lesser participation of younger generation in sheep rearing could possibly be due to availability of more lucrative sources of income besides lack of knowledge with regard to the economic potential of sheep rearing as an enterprise.

Education status of sheep breeders

The results have been presented in table-7. The results revealed that majority of sheep rearers in Anantnag district (44.06%) were illiterate followed by those who had studied upto middle standard (27.30%). The proportion of illiterate sheep rearers in district Anantnag were significantly ($p<0.05$) higher in Pahalgam (60.00%) and Bijbehara (52.00%) than in Anantnag (44.55%), Shangus (46.67%), Kokernag (42.00%) and Dooru (40.00%), tehsil. Results similar to present findings indicating illiteracy among majority of respondents have also been reported earlier in Bandur sheep rearers in Mandya district of Karnataka [11] and Nellore districts of Andhra Pradesh [13]. Education has a fundamental role in adoption of improved management practices and disease awareness cum control programmes in livelihood enterprises, particularly in sheep rearing. The literacy rate, active participation of breeders in awareness camps need to be improved for early adoption of improved management practices by government and the voluntary organizations.

Sheep rearing experience of family head

The results regarding sheep rearing experience of the sheep rearers have been presented in table- 8. Results showed that majority (29.73%) of sheep rearers have 15-20 years of sheep rearing experience followed by 10-15 years (26.22%), >20 years (25.14%), 5-10 years (14.60%) and <5 years (4.33%), respectively. The proportion of sheep rearers having rearing experience of 15-20 years' experience was significantly ($p<0.05$) higher in Shangus (36.67%) than in Kokernag (26.00%). The results of the study were in corroboration with earlier findings in Odisha [10], wherein majority of sheep farmers had average experience of 11-20 years in Sheep and goat farming. Experience in sheep rearing has some bearing on the managerial practices being followed. Sheep rearing in the region is an age old tradition interwoven with the customs and livelihood security. Family heads as such are involved with sheep rearing and pass on their experience to the younger lot.

Women participation in sheep rearing activities

The details regarding women involvement in sheep rearing practices have been presented in table- 9. Results showed that in Anantnag district majority of families (64.06%) involved participation of single woman in sheep rearing activities and the proportion of such families was significantly ($p<0.05$) higher in Pahalgam (84.29%) and Kokernag (70.00%) than in Anantnag (53.64%), Dooru (55.00%), Shangus (60.00%), Bijbehara (64.00%). Results similar to present findings have also been reported earlier in Sundarban, West Bengal [8], wherein female engagement in sheep rearing practice was predominant. Women have direct and vital role in management of sheep in sheep rearing families. In J and K, during winter season the affairs of sheep rearing (feeding, watering, shelter, dung removal, etc) are managed mainly by women, while during summer season sheep are taken to pastures by shepherds or hired labourers and women find little role. During spring and autumn season, after grazing, sheep are managed mainly by women regarding their shelter and feeding. In shepherd families, women are directly involved in every affair of sheep rearing, as it is their prime and exclusive source of income.

Livestock inventory of sheep reared by sheep breeders

The flock composition of sheep have been presented in table-10. Results revealed that sheep rearers in Anantnag maintained flocks with strength of 38.73 ± 0.47 sheep consisting of 28.38 ± 0.38 ewes, 1.30 ± 0.03 rams, 3.62 ± 0.17 male lamb and 5.43 ± 0.11 female lamb. In district Anantnag, average flock strength was higher among sheep rearers in Shangus (42.81 ± 3.93) and Bijbehara (42.28 ± 2.63) than in Anantnag (37.10 ± 1.34), Dooru (37.44 ± 2.13), Pahalgam (41.95 ± 1.94) and Kokernag (39.98 ± 2.34) tehsil, though the comparisons were statistically insignificant. Results similar to present findings have also been reported by earlier [9, 16] in elsewhere parts of country. Very small flock size of less than 10 has also been reported earlier [12, 17] among sheep rearers elsewhere. Less average flock size as revealed in the present study could possibly be attributed to various constraints vis a vis feeding, high mortalities, poor credit facilities besides gradual shift to other professions promising better remuneration.

Livestock inventory other than sheep reared by sheep breeders

The details regarding livestock inventory other than sheep maintained by sheep rearers have been presented in table- 11. Results revealed that sheep rearers in Anantnag district maintained a livestock inventory of cattle, goat and equines besides sheep. Majority of sheep rearers (60.54%) were rearing 0-2 cattle/household. Besides cattle, a minor proportion of sheep rearers were also maintaining goats (13.25% and 16.18%) and equines (7.03% and 3.82%) in Anantnag district. In district Anantnag, proportion of sheep rearers who were maintaining 0-2 cattle was significantly ($P<0.05$) higher in Bijbehara (72.00%) and Anantnag (66.36%) than in Dooru (56.67%), Shangus (53.33%), Pahalgam (55.71%) and Kokernag (52.00%) tehsil. The results of the present study were in corroboration with earlier studies [12, 16] reporting other species of livestock besides sheep were maintained by sheep rearers elsewhere. Cows are mainly reared for milk production for home consumption and for sale while bulls for draught purpose. Equines are mainly reared by chopan community for transportation of luggage during migration to high land pastures. Goats are reared for

milk and meat by some respondents. Dogs are mainly reared by shepherd community and by some large flock size rearers for protection of sheep from wild predators, thieves etc.

Conclusion

Sheep in Anantnag district are mainly reared by illiterate, lower income group (Rs 10,000-20,000), middle aged (> 40 years) marginal land holders having joint and medium size families (6-9 members) with agriculture as primary and sheep farming as secondary occupation. There is significant involvement of women in sheep rearing.

Acknowledgements

The authors thankfully acknowledge the sheep husbandry department of Anantnag district (J and K) for providing the necessary assistance during conduct of survey. The humble farmers of different villages are also thankfully acknowledged for their kind cooperation during the survey work.

Conflict of Interest

The authors declare that there is no conflict of interest for this study.

Table 1: Family size and type in Anantnag district.

Parameter	Variant	Anantnag (110)	Dooru (60)	Shangus (30)	Pahalgam (70)	Kokernag (50)	Bijbehara (50)	Total (370)
Family size	Small (<6)	27 ^a (24.55)	11 ^{ab} (18.33)	5 ^{ab} (16.67)	11 ^b (15.71)	9 ^{ab} (18.00)	11 ^{ab} (22.00)	74 (20.00)
	Medium (6-9)	72 ^{abc} (65.45)	43 ^{ab} (71.67)	22 ^a (73.33)	43 ^c (61.43)	32 ^{bc} (64.00)	33 ^{abc} (66.00)	245 (66.22)
	Large (>9)	11 ^b (10.00)	6 ^b (10.00)	3 ^b (10.00)	16 ^a (22.86)	9 ^{ab} (18.00)	6 ^b (12.00)	51 (13.78)
Family type	Nuclear	41 ^c (37.28)	22 ^c (36.67)	18 ^a (60.00)	28 ^{bc} (40.00)	32 ^a (64.00)	23 ^b (46.00)	164 (44.33)
	Joint	69 ^a (62.72)	38 ^a (63.33)	12 ^c (40.00)	42 ^{ab} (60.00)	18 ^c (36.00)	27 ^b (54.00)	206 (55.68)

Figures with different superscripts within a row differ significantly at $p<0.05$

Figures in parenthesis indicate percentages within a column with respect to each parameter

Table 2: Primary occupation of sheep breeders in Anantnag district.

Occupation	Anantnag (110)	Dooru (60)	Shangus (30)	Pahalgam (70)	Kokernag (50)	Bijbehara (50)	Total (370)
Agriculture	53 ^{bc} (48.19)	32 ^{ab} (53.34)	19 ^a (63.34)	14 ^d (20.00)	21 ^c (42.00)	19 ^c (38.00)	168 (45.41)
Sheep farming	6 ^b (5.45)	3 ^b (5.00)	2 ^{ab} (6.67)	9 ^{ab} (12.86)	4 ^{ab} (8.00)	7 ^a (14.00)	31 (8.38)
Agri + Sheep	18 ^{ab} (16.36)	7 ^b (11.66)	3 ^b (10.00)	10 ^{ab} (14.28)	11 ^a (22.00)	11 ^a (22.00)	60 (16.22)
Govt. Service	8 (7.27)	5 (8.34)	0 (0.00)	6 (6.85)	2 (4.00)	3 (6.00)	24 (6.49)
Livestock	12 ^{ab} (10.91)	3 ^b (5.00)	4 ^{ab} (13.34)	14 ^a (20.00)	9 ^a (18.00)	5 ^{ab} (10.00)	47 (12.71)
Agri + livestock	4 (3.64)	6 (10.00)	0 (0.00)	3 (4.28)	1 (2.00)	2 (4.00)	16 (4.33)
Others	9 (8.18)	4 (6.67)	2 (6.67)	4 (5.71)	2 (4.00)	3 (6.00)	24 (6.49)

Figures with different superscripts within a row differ significantly at $p<0.05$

Figures in parenthesis indicate percentages within a column with respect to each parameter

Table 3: Secondary occupation of sheep breeders in Anantnag district

Parameter	Anantnag (110)	Dooru (60)	Shangus (30)	Pahalgam (70)	Kokernag (50)	Bijbehara (50)	Total (370)
Agriculture+Horticulture	28 ^b (25.46)	18 ^{a b} (30.00)	7 ^b (23.34)	26 ^a (37.15)	14 ^b (28.00)	13 ^b (26.00)	106 (28.65)
Sheep farming	24 ^a (21.82)	13 ^a (21.66)	4 ^b (13.33)	10 ^{ab} (14.28)	12 ^a (24.00)	9 ^{ab} (18.00)	72 (19.46)
Agri +Sheep	24 ^c (21.82)	17 ^{bc} (28.34)	12 ^a (40.00)	27 ^a (38.58)	17 ^{ab} (34.00)	19 ^a (38.00)	116 (31.36)
Livestock	7 (6.37)	4 (6.67)	3 (10.00)	3 (4.29)	2 (4.00)	2 (4.00)	21 (5.68)
Agri +livestock	14 (12.73)	5 (8.34)	2 (6.67)	2 (2.86)	3 (6.00)	3 (6.00)	29 (7.84)
Others	13 ^a (11.82)	3 ^{ab} (5.00)	2 ^{ab} (6.67)	2 ^b (2.85)	2 ^{ab} (4.00)	4 ^{ab} (8.00)	26 (7.03)

Figures with different superscripts within a row differ significantly at $p < 0.05$

Figures in parenthesis indicate percentages within a column with respect to each parameter

Table 4: Land holding (kanals/family) of sheep rearers in Anantnag district.

Parameter	Anantnag (110)	Dooru (60)	Shangus (30)	Pahalgam (70)	Kokernag (50)	Bijbehara (50)	Total (370)
Irrigated (kanals/family)	5.60±0.24 ^{dc}	6.41±0.35 ^c	4.96±0.45 ^d	5.32±0.27 ^d	8.58±0.41 ^b	10.28±0.42 ^a	6.66±0.16
Non- irrigate (kanals/family)	3.66±0.21 ^d	4.60±0.33 ^c	3.03±0.37 ^d	7.64±0.29 ^a	5.64±0.32 ^b	4.84±0.26 ^{bc}	4.94±0.14
Total (kanals/family)	9.26±0.45 ^d	11.01±0.68 ^c	7.99±0.82 ^d	12.96±0.56 ^b	14.22±0.73 ^{ab}	15.12±0.66 ^a	11.60±0.30

Figures with different superscripts within a row differ significantly at $p < 0.05$

Table 5: Income of sheep breeders in Anantnag district.

Parameter	Anantnag (110)	Dooru (60)	Shangus (30)	Pahalgam (70)	Kokernag (50)	Bijbehara (50)	Total (370)
<10,000 Rs.	37 ^{c d} (33.64)	25 ^c (41.67)	8 ^d (26.67)	45 ^a (64.29)	26 ^b (52.00)	13 ^d (26.00)	154 (41.63)
11,000-20,000 Rs.	52 ^b (47.28)	29 ^b (48.34)	17 ^{ab} (56.67)	23 ^c (32.86)	21 ^{bc} (42.00)	30 ^a (60.00)	172 (46.49)
21,000-30,000 Rs.	16 ^a (14.55)	4 ^{a b} (6.67)	3 ^{ab} (10.00)	2 ^b (2.86)	3 ^{a b} (6.00)	6 ^{ab} (12.00)	34 (9.19)
>30,000 Rs.	5 (4.55)	2 (3.34)	2 (6.67)	0 (0.00)	0 (0.00)	1 (2.00)	10 (2.71)

Figures with different superscripts within a row differ significantly at $p < 0.05$

Figures in parenthesis indicate percentages within a column with respect to each parameter

Table 6: Age status of sheep breeders in Anantnag district.

Parameter	Anantnag (110)	Dooru (60)	Shangus (30)	Pahalgam (70)	Kokernag (50)	Bijbehara (50)	Total (370)
21-30	4 (3.64)	2 (3.34)	0 (0.00)	2 (2.86)	1 (2.00)	0 (0.00)	9 (2.44)
31-40	15 (13.64)	4 (6.67)	3 (10.00)	6 (8.58)	2 (4.00)	3 (6.00)	33 (8.92)
41-50	37 ^a (33.64)	18 ^{ab} (30.00)	7 ^b (23.34)	24 ^a (34.29)	7 ^c (14.00)	3 ^d (6.00)	96 (25.95)
51-60	21 ^d (19.09)	18 ^{bc} (30.00)	8 ^c (26.67)	17 ^{cd} (24.29)	17 ^b (34.00)	26 ^a (52.00)	106 (28.65)
61-70	25 ^c (22.73)	16 ^b (26.67)	10 ^b (33.34)	18 ^b (25.72)	21 ^a (42.00)	16 ^b (32.00)	107 (28.92)
>70	8 (7.28)	2 (3.34)	2 (6.67)	3 (4.29)	2 (4.00)	2 (4.00)	19 (5.14)

Figures with different superscripts within a row differ significantly at $p < 0.05$

Figures in parenthesis indicate percentages within a column with respect to each parameter

Table 7: Education qualification of sheep breeders in Anantnag district.

Parameter	Anantnag (110)	Dooru (60)	Shangus (30)	Pahalgam (70)	Kokernag (50)	Bijbehara (50)	Total (370)
Illiterate	49 ^{bc} (44.55)	24 ^c (40.00)	14 ^{bc} (46.67)	42 ^a (60.00)	21 ^c (42.00)	26 ^{ab} (52.00)	163 (44.06)
Primary	15 (13.64)	6 (10.00)	2 (6.67)	8 (11.43)	6 (12.00)	8 (16.00)	45 (12.17)
Middle School	24 ^{bc} (21.82)	21 ^{ab} (35.00)	9 ^b (30.00)	14 ^c (20.00)	13 ^{bc} (26.00)	20 ^a (40.00)	101 (27.30)
High School	16 (14.55)	7 (11.67)	4 (13.34)	6 (8.58)	9 (18.00)	7 (14.00)	49 (13.25)
Graduate	6 (5.46)	2 (3.34)	1 (3.34)	0 (0.00)	1 (2.00)	2 (4.00)	12 (3.25)

Figures with different superscripts within a row differ significantly at $p < 0.05$

Figures in parenthesis indicate percentages within a column with respect to each parameter

Table 8: Sheep rearing experience of family head in Anantnag district.

Parameter	Anantnag (110)	Dooru (60)	Shangus (30)	Pahalgam (70)	Kokernag (50)	Bijbehara (50)	Total (370)
<5 years	7 (6.37)	2 (3.34)	0 (0.00)	2 (2.86)	2 (4.00)	3 (6.00)	16 (4.33)
5-10 years	20 ^a (18.19)	5 ^b (8.34)	4 ^{ab} (13.34)	9 ^{ab} (12.86)	10 ^a (20.00)	6 ^{ab} (12.00)	54 (14.60)
10-15 years	25 ^b (22.73)	13 ^b (21.67)	8 ^{ab} (26.67)	21 ^{ab} (30.00)	16 ^a (32.00)	14 ^{ab} (28.00)	97 (26.22)
15-20 years	32 ^{ab} (29.09)	19 ^{ab} (31.67)	11 ^a (36.67)	20 ^{ab} (28.58)	13 ^b (26.00)	15 ^{ab} (30.00)	110 (29.73)
>20 years	26 ^b (23.64)	21 ^a (35.00)	7 ^b (23.34)	18 ^b (25.72)	9 ^b (18.00)	12 ^b (24.00)	93 (25.14)

Figures with different superscripts within a row differ significantly at $p < 0.05$

Figures in parenthesis indicate percentages within a column with respect to each parameter

Table 9: Women participation in sheep rearing activities in Anantnag district.

Parameter	Anantnag (110)	Dooru (60)	Shangus (30)	Pahalgam (70)	Kokernag(50)	Bijbehara (50)	Total (370)
One women involved (A)	59 ^d (53.64)	33 ^d (55.00)	18 ^{cd} (60.00)	59 ^a (84.29)	35 ^b (70.00)	32 ^{bc} (64.00)	237 (64.06)
Two women involved (B)	4 (3.63)	2 (3.33)	0 (0.00)	3 (4.29)	2 (4.00)	1 (2.00)	12 (3.25)
Total (A+B)	63 ^d (57.28)	35 ^{cd} (58.33)	18 ^{cd} (60.0)	62 ^a (88.58)	37 ^b (74.00)	34 ^c (68.00)	249 (67.30)
Not involved	47 ^a (42.72)	25 ^a (41.66)	12 ^{ab} (40.00)	8 ^c (11.43)	13 ^b (26.00)	16 ^b (32.00)	121 (32.71)

Figures with different superscripts within a row differ significantly at $p < 0.05$

Figures in parenthesis indicate percentages within a column with respect to each parameter

Table 10: Details of sheep flock composition in Anantnag district.

Parameter	Anantnag (110)	Dooru (60)	Shangus (30)	Pahalgam (70)	Kokernag (50)	Bijbehara (50)	Total (370)
Ewes	24.74±1.15 ^b	27.43±1.79 ^{ab}	31.66±3.06 ^a	30.71±1.70 ^{ab}	29.30±1.93 ^{ab}	31.38±2.06 ^a	28.38±0.38
Rams	1.22±0.07	1.2±0.08	1.43±0.16	1.52±0.09	1.24±0.10	1.31±0.11	1.30±0.03
Male lamb	3.25±0.15	3.53±0.19	4.85±0.85	3.88±0.16	4.72±0.24	3.84±0.27	3.62±0.17
Female lamb	4.89±0.18	5.28±0.27	4.85±0.42	5.82±0.15	4.72±0.23	5.76±0.31	5.43±0.11
Average flock size	37.10±1.34	37.44±2.13	42.81±3.93	41.95±1.94	39.98±2.34	42.28±2.63	38.73±0.47

Table 11: Livestock inventory reared by sheep breeders in district Anantnag.

Category	Variant	Anantnag (110)	Dooru (60)	Shangus (30)	Pahalgam (70)	Kokernag (50)	Bijbehara (50)	Total (370)
Cattle	0-2	73 ^a (66.36)	34 ^b (56.67)	16 ^b (53.33)	39 ^b (55.71)	26 ^b (52.00)	36 ^a (72.00)	224 (60.54)
	3-4	27 ^c (24.54)	22 ^a (36.66)	12 ^a (40.00)	25 ^{ab} (35.71)	19 ^a (38.00)	14 ^{bc} (28.00)	121 (32.70)
	>4	10 ^a (9.09)	4 ^{ab} (6.67)	2 ^{ab} (6.67)	6 ^{ab} (8.58)	3 ^{ab} (6.00)	0 ^b (0.00)	25 (6.76)
Goat	Reared	17 ^a (15.46)	8 ^{ab} (13.34)	2 ^b (6.67)	10 ^{ab} (14.29)	5 ^{ab} (10.00)	7 ^{ab} (14.00)	49 (13.25)
	Not reared	93 ^b (84.55)	52 ^{ab} (86.67)	28 ^a (93.34)	60 ^{ab} (85.72)	45 ^{ab} (90.00)	43 ^{ab} (86.00)	321 (86.76)
Equine	Reared	7 ^{abc} (6.37)	5 ^{ab} (8.33)	0 ^c (0.00)	9 ^a (12.86)	3 ^{abc} (6.00)	2 ^{bc} (4.00)	26 (7.03)
	Not reared	103 ^{ab} (93.64)	55 ^b (91.67)	30 ^a (100.00)	21 ^b (87.15)	47 ^{ab} (94.00)	48 ^{ab} (96.00)	344 (92.98)

Figures with different superscripts within a row differ significantly at $p < 0.05$

Figures in parenthesis indicate percentages within a column with respect to each parameter

Reference

- Birthal PS, Ali J. Potential of Livestock sector in rural transformation. In R. Nayyar and Sharma, A.N (eds.) Rural transformation in India. The role of non- farm sector. New Delhi: Institute of Human Development and Manohar publishers and distributors, 2005.
- Anonymous. Digest of Statistics, Directorate of Sheep Husbandry, Jammu/Kashmir, 2013-14.
- Anonymous. 20th Livestock census, All India report. Govrment. of India, Directorate of Economics and Statistics. Ministry of Agriculture, department of Animal Husbandry, Dairying and Fisheries Krishi Bhawan, New Delhi, 2019.
- Anonymous. District Sheep Husbandry Office, Department of sheep husbandry Anantnag, Government of Jammu and Kashmir, 2019.
- Anonymous. Directorate of Sheep Husbandry Kashmir division, Government of Jammu and Kashmir, 2017. http://jksheephusbandry.nic.in/employment_opportunities.html
- Snedecor GW, Cockran WG. Statistical Methods, 8th Ed. The Iowa State University Press, Ames, Iowa, USA, 1994.
- Hailemariam F, Melesse A, Banerjee S. Traditional sheep production and breeding practice in Gamogofa Zone, Southern Ethiopia. International Journal of Livestock Production Research. 2013; 1(3):26-43.
- Dhara K, Moitra N, Misra S, Ghosh S, Bose S, Poddar K. Socio- economic status of the sheep and goat farmers in Sundarban, West Bengal. International Journal of Livestock Research. 2019; 9(9):168-179.
- Want QA. Documentation and characterization of Kashmir Merino sheep in Srinagar of Kashmir valley. M.V.Sc. Thesis submitted to Shere-e-Kashmir University of Science and Technology-Kashmir, 2016.
- Sahoo C, Tiwari R, Roy R. Assessment of socio-economic status of contract and non-contract goat farmers of Odisha- A comparative study. International Journal of Livestock Research. 2018; 8(10):348-356.
- Arparna BC, Kondepudi N, Shanmukh SK. A study on socio-economic status of Bandur sheep rearing farmers in Mandya district, Karnataka. International Journal of Humanities and Social Sciences. 2016; 5(2):153-160.
- Kunarathinam P, Sinniah J. Management and Breeding Activities of Goat Farming in the Kilinochchi District of Sri Lanka. International Journal of Livestock Research. 2019; 9(1):21-32.
- Shaik M, Subrahmanyeswari B, Sharma GRK. Analysing the socio-personal, economic profile and preparedness of sheep farmers. International Journal of Science, Environment and Technology. 2017; 6:1641-1649.
- Khan AA, Dar AA, Khan HM, Mir MS, Malik AA, Afzal Y. Status of livestock production in Gurez valley of Jammu and Kashmir in India. Indian Journal of Hill Farming. 2013; 26(2):54-58.
- Melissa M, Yusoff M. Socio-economic factors in relation to small ruminant farming potential in Malaysia: Ranchers perspective. International Journal of Agriculture, Forestry and Plantation. 2016; 2:2462-1757.
- Shah AA. Prevalent management practices and economic evaluation of sheep farming in Bandipora district of Jammu and Kashmir. Ph.D Thesis submitted to Sher-e-Kashmir University of Science and Technology-Kashmir, 2017.
- Taye D, Abebe G. Socioeconomic aspect and husbandry practices of sheep kept in Awassa city. E (Kika) de la Garza Institute for Goat Research, Langston University, Langston, 2000, 175-181.