



Socio-economic status of Pantja goat rearers of Uttarakhand

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ABSTRACT

A benchmark survey was conducted to collect the baseline information from the Pantja goat rearers regarding various breeding management practices with special reference to Pantja goats under field condition of Udham Singh Nagar and Nainital districts of *Tarai* region of the Uttarakhand during a period of two year (April 2015 to March 2017). Majority (90.39%) of goat rearers belonged to Hindu religion, 55.97% of respondents lived in nuclear family with 53.64% having a family size of more than 5 members. Overall literacy rate was 64.96%. Majority of the farmers rearing Pantja goats were from Scheduled castes (43.88%) and 82.95% belonged to the middle age group. Majority of the goat keepers (47.91%) followed animal husbandry as a primary profession and 73.80% were landless. Among the total livestock maintained by the goat keepers, maximum (81.69%) were goats, 10.84% cattle and 7.47% were buffaloes. The majority of households (71.97%) earned a total income of more than ₹50,000 followed by 26.36% households with total income between ₹20,001–50,000, 1.55% with a total income between ₹10,000–20,000 and only 0.16% with less than ₹10,000 per annum.

Keywords: Annual income, Family, Goat keepers, Livestock holding, Occupation, Pantja

Livestock is an integral part of India's agricultural economy and plays a multifaceted role in providing livelihood support to the rural population. Livestock sector apart from contributing to national economy (5.21% to total GDP and 28.36% to the overall agricultural production) in general and to agricultural economy in particular, also provides employment generation opportunities (8% of the labour force), asset creation, coping mechanism against crop failure and social and financial security (NLP 2013, BAHs 2020). Goats have been an integral component of India's livestock economy, hence development of goat production is considered to be a pathway for inclusive agricultural growth as out of 138 million operational holdings, the small and marginal holdings (below 2 ha) together constituted 85% (GoI 2014) and these holdings are the main custodian (>75% of total goat population). In pastoral societies in India, goats are kept as a source of additional income and as an insurance against income shocks of crop failure. Goat enterprise has also shown promise of its successful intensification and commercialization. Goats are not only an important source of income and employment for them, but also a vital source of animal protein for the family. Very little data are currently available about the present condition of the goat farmers of with special reference to *Tarai* region

of Uttarakhand. Keeping in view, the present study was conducted to explore the personal, social and economic status of Pantja goat farmers in *Tarai* region of Uttarakhand.

MATERIALS AND METHODS

A benchmark survey was conducted to collect the baseline information from the Pantja goat rearers regarding various personal particulars and their families related to family profile, caste, religion, age, type and size of family, education, main occupation, income generation, land resource and details of goats and other livestock holdings of the selected respondents of Udham Singh Nagar and Nainital districts of *Tarai* region of the Uttarakhand during a period of two year (April 2015 to March 2017). Multistage sampling method was adopted for the selection of respondents. Four clusters (Bhimtal, Tilpuri, Bara and Kunda) were selected from two districts (Udham Singh Nagar and Nainital). Total 113 villages were surveyed on the basis of availability of Pantja goats. An individual farmer rearing Pantja goats formed the unit of a sample. A list of goat rearing families of the selected villages was prepared with the help of village Pradhan and Patvari and mostly all Pantja goat rearers were selected for survey from each village. Thus 645 selected respondents (372 of US Nagar and 273 of Nainital district) were interviewed and the desired information was collected. The data were collected by personal interview techniques through an interview schedule by administering a developed questionnaire and also by direct observation in the farmer's flocks. Before

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administering interview schedule to the sample subjects, specific objectives and the purpose of the survey was explicitly explained. The questions in the schedule were presented to them in their own dialect ensuring that they perceive the questions correctly. The responses to each of the question in the schedule were coded and tabulated respondent wise in a master sheet. The qualitative data were quantified accordingly and tabulated to draw meaningful inferences. Therefore, appropriate tables were prepared, keeping in view the specific objectives of the study. The collected data were subjected to basic statistical analysis as per Snedecor and Cochran (1994).

RESULTS AND DISCUSSION

The results of the present study revealed that out of 645 respondents in the surveyed area, majority (90.39%) of Pantjagoat rearers belonged to Hindu religion followed by Muslims (6.82%), Sikhs (0.47%) and others (2.33%). According to districts, maximum Hindu families (98.17%) were engaged in goat rearing in Nainital followed by (84.68%) in US Nagar district. The reasons for this might be the higher proportion of Hindus living in the study area.

The data pertaining to the caste categories of goat rearers of both the districts revealed that majority of the farmers rearing goats were those from Scheduled castes (43.88%) followed by general caste (37.52%), other backward caste (16.59%) and Scheduled tribes (2.02%). Present finding are in agreement with those reported by Singh (2015) and Sone *et al.* (2015) who conducted studies in Uttarakhand and reported that majority of goat keepers belonged to general and schedule caste category. On the other hand, Singh *et al.* (2014) observed in a study carried out in Bundelkhand region of Uttar Pradesh and reported that majority of goat keepers (54%) belonged to the backward social community followed by scheduled caste (37%) and general category (9%).

The majority (55.97%) of respondents belonged to a nuclear family and 53.64% of the goat keepers had a family size of more than 5 members. According to districts, the results indicated that 56.99% of respondents had large family size (>5 members) in US Nagar followed by 49.08% in Nainital district. These findings are in consonance with those of Kumar *et al.* (2015), Sone *et al.* (2015), Islam *et al.* (2018) and Paul *et al.* (2020). Higher number of members in the family is due to illiteracy and unawareness about family planning programmes aimed at a small sized family in the study area.

In case of literacy rate, 35.04% respondents were

illiterate and a majority (50.39%) of respondents had acquired primary level of education, while 14.57% had an educational level of matric and above. These results were in concurrence with the findings of Deshpande *et al.* (2010), Islam *et al.* (2018) and Paul *et al.* (2020). In contrast, a lower literacy rate than the present study were reported by Khadda *et al.* (2012) and Kumar *et al.* (2015) in their study areas in different part of the country. Level of education of goat keepers plays an important role for adoption of new innovations in goat rearing. The educated farmers will grasp the depth of innovative technologies quickly. Therefore, a mission for improving literacy in the area is urgently needed to improve the adoption level of goat rearers.

Family statistics of goat keepers: The study revealed that 645 goat rearing families had a total of 3,979 family members, out of which men, women, child male and child female accounted for 37.45, 33.90, 15.91 and 12.74%, respectively. The collected information indicated that male and female ratio was comparatively higher in U.S. Nagar as compared to Nainital district.

The majority of goat keepers (82.95%) belonged to the middle age group with a mean of 47.48 ± 0.30 years. The participants of young and higher age group among the goat rearers were 6.82% and 10.23% with mean $\pm$ SE age of 29.70 ± 0.45 and 66.06 ± 0.53 years, respectively. The findings are in close agreement with the findings as reported by Khadda *et al.* (2012), Sone *et al.* (2015) and Islam *et al.* (2018). The reasons for this might be the health of old people being affected by the climatic conditions of the *Tarai* region and engagement of the farmers of younger age group in other economic activities. The middle age group farmers have realized and recognized goat production as a suitable venture for overcoming the financial hardships.

Occupation of goat keepers: The majority of goat keepers (47.91%) followed animal husbandry as their primary profession while the others depended on agriculture and animal husbandry (19.69%), labour (19.07%) and on other means of livelihood (6.20%). Only 3.72 and 0.93% goat keepers practiced services and business respectively as their primary profession (Table 1). The reason behind this could be the fact that majority of households involved in goat rearing in this region are small, marginal and land less farmers.

Land holding of goat keepers: Most of the goat keepers (73.80%), irrespective of the district were landless. The average land holding of goat rearers in the surveyed area was 0.20 ± 0.03 ha. The largest land holding was possessed by goat rearers of Nainital district (0.33 ± 0.06 ha) followed

Table 1. Distribution of goat keepers according to their occupation

Particular	Service	Business	Agriculture	Animal Husbandry	Agriculture + Animal Husbandry	Labour	Others	Total
U.S. Nagar	18(4.84)	03(0.81)	11(2.96)	188(50.54)	57(15.32)	77(20.69)	18(4.84)	372(100.00)
Nainital	06(2.20)	03(1.10)	05(1.83)	121(44.32)	70(25.64)	46(16.85)	22(8.06)	273(100.00)
Overall	24(3.72)	06(0.93)	16(2.48)	309(47.91)	127(19.69)	123(19.07)	40(6.20)	645(100.00)

by US Nagar district (0.10 ± 0.02). The data of the study also indicated that 16.28% goat keepers had less than 1 ha, 8.68% had 1.0–1.5 ha and 1.24% had above 1.50 ha of land. These findings are almost similar as observed by Khadda *et al.* (2012) and Singh (2015). This may be due to the fact that goat rearing is still the occupation of poor people in the study area.

Livestock holding of goat keepers: The total livestock maintained by goat keepers maximum (81.69%) were goats, 10.84% cattle and 7.47% buffaloes which indicated that the area selected for the study is a goat rearing tract of Uttarakhand. The average goat holding per goat keepers was highest (16.99 ± 0.7) in Nainital followed by U.S. Nagar district (11.78 ± 0.43) with overall average 13.99 ± 0.38 goats per household (Table 2). For other livestock species, average flock size was 1.28 ± 0.07 buffalo and 1.86 ± 0.12 cattle per household. Out of total goat population, 43.62, 8.31, 12.40, 6.35, 16.41 and 12.91% were adult female, adult male, young female, young male, female kids and male kids, respectively. More or less similar findings have also been reported by Singh (2015).

Annual income of goat keepers: The majority of goat keepers (35.67%) earned income between ₹ 10,000–20,000 with an average of ₹ $14,478 \pm 179$ followed by 33.80% earning incomes between ₹ 20,001–50,000 with an average of ₹ $32,135 \pm 539$ whereas, 19.07% goat keepers earned less than ₹ 10,000 per annum with an average of ₹ 8045 ± 155 . Only 11.47% goat keepers earned more than ₹ 50,000 with an average ₹ $80,517 \pm 3,404$, annually through goat rearing (Table 3). The average annual income of goat keepers through goat rearing was ₹ $26,795 \pm 951$ per household. The reason for less income from goat rearing may be small flock size of goat and involvement of middleman in goat marketing.

The average annual income of goat rearers generated through other sources was ₹ $43,458 \pm 1,765$ per household (Table 4), whereas, the total annual income of the goatherd's family (including income from goats and other sources) was ₹ $70,213 \pm 1,843$ per household (Table 5). The majority of households (71.97%) earned a total income of more than ₹ 50,000 with an average of ₹ $82,425 \pm 2,311$ followed by 26.36% households with total income between ₹ 20,001–

Table 2. Average livestock holding of goat keepers (Mean $\pm$ SE)

Animal	Districts						Overall (N=645)		
	U.S. Nagar (N=372)			Nainital (N=273)			Mean $\pm$ SE	N	%
	Mean $\pm$ SE	N	%	Mean $\pm$ SE	N	%			
Goat	11.78 ± 0.43	4,384	79.81	16.99 ± 0.7	4,639	83.56	13.99 ± 0.38	9,023	81.69
Buffalo	1.10 ± 0.10	408	7.43	1.53 ± 0.11	417	7.51	1.28 ± 0.07	825	7.47
Cattle	1.88 ± 0.21	701	12.76	1.82 ± 0.02	496	8.93	1.86 ± 0.12	1,197	10.84
Total	14.76 ± 0.54	5,493	100.00	20.34 ± 0.61	5,552	100.00	17.12 ± 0.42	11,045	100.00

Table 3. Average annual income (₹) of goat keepers from goats (Mean $\pm$ SE)

Income group (₹)	Districts						Overall		
	US Nagar			Nainital			Mean $\pm$ SE	N	%
	Mean $\pm$ SE	N	%	Mean $\pm$ SE	N	%			
< 10000	8027 ± 188	85	22.85	8084 ± 272	38	13.92	8045 ± 15500	123	19.07
10000–20000	14072 ± 269	150	40.32	15240 ± 338	80	29.30	14478 ± 1790	230	35.67
20001–50000	32498 ± 832	96	25.81	31850 ± 710	122	44.69	32135 ± 5390	218	33.80
>50000	78045 ± 4232	41	11.02	83590 ± 5564	33	12.09	80517 ± 3404	74	11.47
Overall	24496 ± 1204	372	100.00	29929 ± 1521	273	100.00	26795 ± 9510	645	100.00

Table 4. Average annual income (₹) of goat keepers from other sources (Mean $\pm$ SE)

Income group (₹)	Districts						Overall		
	US Nagar			Nainital			Mean $\pm$ SE	N	%
	Mean $\pm$ SE	N	%	Mean $\pm$ SE	N	%			
< 10000	5400 ± 490	34	9.14	5916 ± 509	24	8.79	5613 ± 355	58	8.99
10000–20000	15005 ± 392	56	15.05	15205 ± 540	29	10.62	15073 ± 316	85	13.18
20001–50000	36075 ± 591	183	49.19	36859 ± 849	110	40.29	36369 ± 487	293	45.43
>50000	71335 ± 1898	99	26.61	79228 ± 8445	110	40.29	75889 ± 4529	209	32.40
Overall	39483 ± 1271	372	100.00	48874 ± 3775	273	100.00	43458 ± 1765	645	100.00

Table 5. Overall annual income (₹) of goat keepers (Mean±SE)

Income group (₹)	Districts						Overall		
	US Nagar			Nainital			Mean±SE	N	%
	Mean±SE	N	%	Mean±SE	N	%			
<10000	8000±00	1	0.27	0	0	0	8000±00	1	0.16
10000–20,000	17667±924	9	2.42	17000±00	1	0.37	17600±830	10	1.55
20001–50,000	39383±861	120	32.26	43330±1208	50	18.32	40544±716	170	26.36
>50000	78206±1644	242	65.05	87025±4473	222	81.32	82425±2311	464	71.97
Overall	63990±1505	372	100.00	78699±3788	273	100.00	70213±1843	645	100.00

50,000 with an average ₹ 40544 ± 716, 1.55% households earned a total income between ₹10,000–20,000 with an average of ₹ 17,600±830 and only 0.16% goat rearers earned less than ₹ 10,000 with an average of ₹ 8,000±00 per annum, which included the income from sale of animals as well as that from other sources like services, agricultural labour, little grocery shops, etc. In this situation, income from goat production plays a major role for their subsistence in rural areas. These findings are almost similar to those observed by Singh *et al.* (2014) and Singh (2015).

It can be concluded that the majority of Pantja goat rearers lived in nuclear family having large family size and they belonged to the middle age group. The income from goat production plays a major role for their subsistence in rural areas. The maximum potential has not been realized due to subsistence type of production system adopted by the goatherds due to low literacy rate. It can be achieved by following improved husbandry practices, which will not only improve the productive and reproductive performance of the goats but also improve the socio-economic conditions of the goatherds of the region.

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