Socio-Economic Characteristics and Composition of Sheep and Goat Farming under Extensive System of Rearing

C. Shivakumara[1], B.S. Reddy[2], S.S. Patil[2]

ABSTRACT

Sheep and goat play an important role in Indian economy and source of livelihood and employment to millions of rural households. Sheep and goats in India are mostly maintained on natural vegetation on common grazing lands, wastelands and uncultivated (fallow) lands, stubbles of cultivated crops and top feeds (tree loppings). Rarely they are kept on grain, cultivated fodder or crop residue. Sheep and goat rearing is the backbone of the economy of small and landless farmers in India. The study was carried out in Tumakuru, Chitradurga, Belagavi and Kalaburagi districts of Karnataka. The results of the study revealed that majority of the sheep and goat farmers belonged to age group of above 40 years and are illiterate (50-52%). The family size of sheep and goat rearing households have medium size with 4-6 members. The maximum number of farmers were having income of less than `1 lakh per annum, who belonged to backward class, scheduled caste and scheduled tribe. The total number of sheep per household were 25, 67 and 27 under small, medium and large herd size with an overall average of 71 sheep per farm. Similarly, about 17, 29 and 43 goats were found in small, medium and large flock size of goat with an average of 30 goats per flock. Majority of the farmers were having kaccha type of shed for rearing sheep (41.66%) and goat (80%).

Key words: Extensive rearing system, Goat flock, Sheep herd.

INTRODUCTION

Sustained economic growth, fast-growing urban population and integration of global agri-food markets are some driving factors of growth in demand for animal food products. Nearly two-thirds of farm households in the country are associated with livestock production and 80 per cent of them are small landholders (d≤2 ha) (Birthal, 2002).

Sheep and goat play an important role in Indian economy and source of livelihood and employment to millions of rural households. This sector witnessed significant increase in output of its products like meat, milk and skin. Sheep and goat have a tremendous potential to adapt in harsh agro-climatic conditions and can be performed on scarce input, thus suitable to large number of rural households of entire country. High income elasticity of demand for sheep and goat products is incremental due to increase in per capita income, diet consciousness and increasing urbanization. Rising demand for sheep and goat meat coupled with low capital investment and recurring cost, quick return and less risk make sheep and goat farming a profitable and sustainable enterprise to different categories of rural households (Shivakumara *et al.*, 2016).

Sheep and goats in India are mostly maintained on natural vegetation on common grazing lands, wastelands and uncultivated (fallow) lands, stubbles of cultivated crops and top feeds (tree loppings). Rarely they are kept on grain, cultivated fodder or crop residue. Sheep and goat rearing is the backbone of the economy of small and landless farmers in India. It is an insurance against crop failure and provides alternate source of livelihood to the farmers round the year. It provide dependable source of income to 40 per cent of the rural population who are below the poverty line. Sheep

[1]Department of Agricultural Economics, University of Agricultural Sciences, GKVK, Bengaluru-560 065, Karnataka, India.
[2]Department of Agricultural Economics, College of Agriculture, Kalaburgi-585 101, Karnataka, India.

Corresponding Author: C. Shivakumara, Department of Agricultural Economics, University of Agricultural Sciences, GKVK, Bengaluru-560 065, Karnataka, India. Email: shivugarje@gmail.com

and goats are mostly reared for wool and meat. Skin and manure constitute important sources of earning, the latter particularly in southern India. The productivity of Indian sheep and goat is lower than those of agriculturally more advanced countries. Yet considering their nutritional and physical environment, their productivity cannot be considered as inefficient. The major reasons for low productivity are inadequate grazing resources, diseases causing high mortality, morbidity, consequent reduced production and lack of organized effort for bringing genetic improvement (Vivek 2012).

MATERIALS AND METHODS

The study was carried out in Tumakuru, Chitradurga, Belagavi and Kalaburagi districts of Karnataka, The multistage random sampling technique was adopted in selecting sample for the study. In the first stage, four districts

namely, Tumakuru, Chitradurga, Belagavi and Kalaburagi were selected based on highest number of sheep and goat population. In the second stage, one taluka from each district was selected based on potentiality and highest number of sheep and goat in the district. In the third stage, 30 farmers (15 sheep farmers, 15 goat farmers) from each of selected taluks were selected at randomly. The total sample size constituted 120 farmers for the study as a whole.

For easy comparison, sheep herd size and goat flock size were classified using below mentioned criteria. The arithmetic mean ($\overline{X}$) and standard deviation (SD) of sheep and goat herd/flock size were calculated in order to demarcate boundaries between different sizes of sheep and goat.

Small herd/flock size: Mean minus standard deviation ($\overline{X}$ - SD) of overall herd/flock size is the value to demarcate small size.

Large herd/flock size: Mean plus standard deviation ($\overline{X}$ +SD) of overall herd/flock size is the value to demarcate the large size.

Medium herd/flock size: farmers whose sheep and goat herd/flock size lies between mean plus or minus standard deviation ($\overline{X}$ ±SD).

RESULTS AND DISCUSSION
Socio-economic characteristics of sample farmers
Characteristics of sample farmers:

The general characteristics of the sample farmers (Table 1) revealed that majority of the sheep rearing (33.33%) farmers are between the age group of 41-51 years followed by above 50 years age group (31.67%), 30-40 years age group (26.67%) and below 30 years age group (8.33%). Similarly, 46.67 per cent of farmers were in the age group of 41-50 years in goat rearing followed by above 50 years (25%), 30-40 years (21.67%) and below 30 years (6.67%) age group. Further, on an average, sheep and goat rearing farmers were around 45 years age.

It is important to note that, in general majority of sheep and goat rearing farmers were illiterate (50-52%) 31-35 per cent had completed primary education followed by high school (11.67%) and college (3-5%) education.

It was found that majority of the sample farmers were having medium (4-6 members) family size followed by small (21-23%) with less than 4 members and large (11-18%) family size with more than 6 members in both sheep and goat rearing farms. On an average sheep and goat rearing farmers were having around 5 family members in the household.

With respect to land holding, majority of the farmers in both sheep (65%) and goat (83.33%) keeping were small farmers followed by medium (31.67% and 11.67% respectively) and large (3% and 5% respectively) size holdings. The average size of land holding indicated that, sheep rearing farmers (3.56 acre) have marginally higher land holding compared to goat rearing farmers (3.17 acre).

Economic status of sheep and goat rearing farmers

The economic status of sheep and goat rearing farmers is presented in Table 2. On an average, sheep and goat rearing farmers were having annual income of `1,58,967 and `1,28,933, respectively. However, majority of both the respondents were having annual income of less than `2,00,000.

In case of sheep rearing, 28.33 per cent were having annual income of less than `1,00,000. Around 27 per cent having annual income of `1,50,001-`2,00,000. Whereas, only 10 per cent having annual income of above `3,00,000. Similarly, 43.33 per cent of the farmers were having annual income of less than `1,00,000 from goat rearing. Around 25 per cent of the farmers were earning income of `1,00,001-`1,50,000, `1,50,001-`2,00,000 and only 7 per cent having income of `2,00,001-`3,00,000.

Table 1: Socio-economic characteristics of sheep and goat rearing farmers.

Particulars	Sheep farmers	Goat farmers
I. Age Group (No.)		
a. Below 30 years	5(8.33)	4(6.67)
b. Between 30-40 years	16(26.67)	13(21.67)
c. Between 41-50 years	20(33.33)	28(46.67)
d. Above 50 years	19(31.67)	15(25.00)
Average age (years)	45.63	45.06
II. Education Level (No.)		
a. Illiterate	31(51.67)	30(50.00)
b. Primary	19(31.67)	21(35.00)
c. High School	7(11.67)	7(11.67)
d. College and above	3(5.00)	2(3.33)
III. Family Size (No.)		
a. Small (<4 members)	14(23.33)	13(21.67)
b. Medium (4-6 members)	35(58.33)	40(66.67)
c. Large (>6 members)	11(18.33)	7(11.67)
Average family size	4.86	4.65
IV. Land Holding (No.)		
a. Small farmers (< 5 acre)	39(65.00)	50(83.33)
b. Medium farmers (5-10 acre)	19(31.67)	7(11.67)
c. Large farmers (> 10 acre)	2(3.33)	3(5.00)
Average land holding (in acre)	3.56	3.17
V. Total respondents (n)	**60**	**60**

Note: Figures in parenthesis indicate per cent to total sample.

Table 2: Economic status of sheep and goat rearing farmers.

Income/ annum	Sheep farmers		Goat farmers	
	Number	Percent	Number	Percent
a. Upto `1,00,000	17	28.33	26	43.33
b. `1,00,001-`1,50,000	12	20.00	15	25.00
c. `1,50,001-`2,00,000	16	26.66	13	21.66
d. `2,00,001-3,00,000	9	15.00	4	6.66
e. Above `3,00,000	6	10.00	2	3.33
Average income (`)	1,58,967	100.00	1,28,933	100.00

Social composition of sheep and goat rearing farmers

The information on distribution of sheep and goat farmers according to their social class is furnished in Table 3.

In case of sheep keeping farmers, out of the total respondents, about 76.66 per cent belonged to Backward classes (OBCs), followed by Scheduled Caste (9%), general category (3%) and Scheduled Tribe (2%). Similarly, about 63.33 per cent of goat farmers belonged to Backward classes (OBCs) followed by Scheduled Tribe (21.66%), Scheduled Caste (11.66%) and general category (3.33%).

Categorization of sheep and goat rearing farmers

As mentioned in methodology, both sheep herd size and goat flock size, the farmers were classified into small, medium and large size based on their mean and standard deviation value. Table 4 indicated that, sheep farmers having less than 36 animals were considered as a small herd size, more than 106 animals were considered as a large herd size and between 36 to 106 animals were classified as medium herd size.

Majority of the farmers in the study area were having medium (70%) herd size with ranging from 37 to 106 animals, followed by large (16.67%) and small (8%) herd size. On an average, total number of sheep per household were 25, 67 and 127 in small, medium and large herd size respectively, with an overall average of 71 sheeps per herd size.

In case of goat rearing farmers, who were having less than 20 animals were considered as small flock size and famers who have more than 39 goats were considered as a large flock size and those having between 21 to 39 goats considered as medium flock size. The number of farmers falls under small, medium and large flock size in the study area were 10, 40 and 10 farmers respectively. On an average, 17 goats were found in small flock size and 29 goats in medium and 43 goats in large flock size with an overall average of 30 goats per flock.

Composition of sheep herd size and goat flock size

The composition of sheep herd size and goat flock size (Table 5) indicated that in small, medium and large herd size, female sheep were 18, 46 and 80 respectively. However, lambs were 7, 18 and 44 in small, medium and large herd size, respectively. Similar trend were noticed in case of goat flock size. It is clear from the table that the composition of sheep and goat size indicated dominance of female sheep (48) and female goat (14) with only 2 and 1 male sheep and goat respectively.

Possession of sheep and goat shed

Sheep and goat production system in our country is predominantly extensive system with zero input concepts. Majority of sheep and goats were reared either in open yard or in mixed type houses without scientific standard. The possession of sheep and goat shed by the respondents is presented in Table 6.

The study revealed that, majority of respondents had constructed kaccha type of house for rearing sheep

Table 3: Social composition of sheep and goat rearing farmers.

Social category	Sheep farmers		Goat farmers	
	Number	Percent	Number	Percent
a.Scheduled Caste (SC)	9	15.00	7	11.66
b.Scheduled Tribe (ST)	2	3.33	13	21.66
c.Backward Classes (OBC)	46	76.66	38	63.33
d.General (Gen)	3	5.00	2	3.33
e.Total	60	100.00	60	100.00

Table 4: Categorization of sheep and goat rearing farmers based on herd and flock size. (Numbers)

Particulars	Herd/Flock size	No. of farmers	Average size
I. Sheep herd size			
a.Small	< 36	8(13.33)	25
b.Medium	37-106	42(70.00)	67
c.Large	> 106	10(16.67)	127
d.Overall	-	-	71
II. Goat flock size			
a.Small	< 20	10(16.67)	17
b.Medium	21-39	40(66.66)	29
c.Large	> 39	10(16.67)	43
d.Overall	-	-	30

Note:1. Decimal values are rounded to its nearer value

2. Figures in parenthesis indicate per cent to respective total

Table 5: Composition of sheep herd and goat flock size. (Numbers)

Herd/Flock size	Ram/ Buck	Male	Female			Lamb /Kids
			Inmilk	Dry	Total	
I. Sheep						
a.Small	1	-	9	9	18	7
b.Medium	2	1	21	25	46	18
c.Large	3	4	41	39	80	44
d.Overall	2	2	23	25	48	21
II.Goat						
a.Small	1	-	4	4	8	8
b.Medium	1	1	7	7	14	13
c.Large	2	2	11	10	21	22
d.Overall	1	1	7	7	14	14

Note: Decimal values are rounded to its nearer value

Table 6: Possession of sheep and goat shed by sample respondents.

Type of house	Sheep farmers		Goat farmers	
	Number	Percent	Number	Percent
a.Pacca	19	31.67	6	10.00
b.Kaccha	25	41.66	48	80.00
c.Mixed	16	26.67	6	10.00
d.Total	60	100.00	60	100.00

(41.66%) and goat (80%). The reason might be lower annual income earning capacity of the respondents and their family members and is also discussed in the earlier section. Similar findings were reported by Braj Mohan *et al* (2012) revealing

that majority of the goats are reared either in open yard or in mixed type houses without scientific basis. A proper shelter controls the incidence of diseases, pests and enhances the productivity of the animal.

Whereas about 32 and 10 per cent of respondents had used pacca type of house for sheep and goat management respectively. About 26.66 and 6.00 per cent of the farmers had used mixed type house for sheep and goat keeping respectively.

CONCLUSION

In general socioeconomic characteristics of the sample farmers indicated that majority of the sheep and goat farmers belonged to age group of above 40 years and are illiterate (50-52%). The family size of sheep and goat rearing households have medium size with 4-6 members. The maximum number of farmers are having income of less than 1 lakh per annum, who belonged to backward class, scheduled caste and scheduled tribe. The total number of sheep per household were 25, 67 and 27 under small, medium and large herd size with an overall average of 71

sheeps per farm. Similarly, about 17, 29 and 43 goats were found in small, medium and large flock size of goat with an average of 30 goats per flock. Majority of the farmers are having kaccha type of shed for rearing sheep (41.66%) and goat (80%).

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