



Research Article

SOCIO-ECONOMIC PROFILE OF SHEEP FARMERS AND FLOCK SIZE OF SHEEP IN DIFFERENT AGRO-CLIMATIC ZONES OF HASSAN DISTRICT

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Abstract: Sheep farming in Hassan district is majorly a livelihood activity for the resource constrained and poor farmers. The socio-economic profile of the sheep farmers across different agro-climatic zones, assessed using multistage stratified random sampling technique revealed that 63.33 percent above 60 years of age (old age), 25.33 percent between 40-59 years (middle age) and 11.33 percent between 20-39 years (young age). 62 percent of them belonged to OBC followed by SC (24.67%), ST (10.67%) and GM (2.66%). The type of family was majorly joint type (63.33%). Vast majority of them were either illiterates (32.67%) or primary level educated (39.33%). 42 percent of the sheep farmers were small to semi-medium land holders. Majority of these variables varied significantly across the zones. The overall average flock size of sheep among the farmers was 49.59 ± 3.85 . Higher flock size was observed in central dry zone (86.51 ± 9.61) and lower in Southern dry zone (19.04 ± 2.55). However, the differences were statistically significant owing to agro-geographical and traditional variations between the zones. The average flock size observed across the zones was optimum enough to be maintained by the family members.

Keywords: Agro-climatic, Hassan, Sheep, Socio-economic

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Introduction

Sheep in India are one among the prime livestock species contributing in sustaining the livelihood of vast majority of rural poor. The distribution of sheep is higher among the resource constrained poor, landless and agricultural labourers. Sheep husbandry is an integral part of Indian livestock production scenario owing to its advantageous attributes. But, the prevalent marketing vulnerabilities, unscientific rearing practices, societal and economic aspects of sheep farmers have been the reasons for poor performance of sheep in India. Hassan district in Karnataka is no exception to the above state of affairs in sheep rearing. The region is agro-geographically typical in possessing four different agro-climatic zones, making livestock production in general and sheep farming in particular a versatile one. In view of varied agro-climatic profile of the area, corresponding sheep production practices become dexterous especially, from the socio-economic perspective of the sheep rearers. Also there exists a relation between the structure of the flock and the social and traditional customs of the sheep farmers of this region. The present study was carried out with objective of documenting the socio-economic contour of the sheep farmers of this region along with the type and structure of the sheep flock that they maintain across the zones.

Materials and Methods

The present study was taken up using a multistage stratified random sampling methodology. The stratification considered only three agro-climatic zones viz;

Central Dry Zone (CDZ), Southern Dry Zone (SDZ) and Southern Transition Zone (STZ) where the maximum sheep population prevailed. Five villages from each zone and ten farmers from each village were selected, constituting 150 respondents for the study. A pretested structured questionnaire schedule was used to collect necessary information by way of personal interview with all the respondents. The data collected on various socio-economic variables and flock size of sheep were tabulated, percentages were calculated and analysed statistically using Chi square test (GraphPad Prism ver 5.0)

Results and Discussion

Socio-economic status of sheep farmers

Vast majority of the sheep farmers belonged to age group of more than 60 years (63.33 %) and 25.33 percent belonged to middle age followed by 11.33 percent to young age group. The differences with respect to the age group of sheep farmers were significant even though CDZ possessed majority of the middle-aged sheep farmers [Table-1]. Category wise composition of the sheep farmers revealed that 62 percent of them belong to OBC category followed by 24.67 percent of SC, 10.67 percent ST and 2.66 percent GM category. However, zone wise differences pertaining to the caste of sheep farmers was non-significant. The observation with respect to family type revealed that 63.33 percent of the sheep farmers in the study area belonged to joint family, while 36.67 percent hailed from nuclear family.

Socio-Economic Profile of Sheep Farmers and Flock Size of Sheep in Different Agro-Climatic Zones of Hassan District

Table-1 Socio-economic status of Sheep Farmers across different Agro-climatic zones

Socio- economic Parameters	CDZ (n = 50)	SDZ (n = 50)	STZ (n = 50)	Pooled (N = 150)	Chi square value & df
Age					61.53*; 4
Young	13 (26)	03 (06)	01 (02)	17 (11.33)	
Middle	27 (54)	04 (08)	07 (14)	38 (25.33)	
Old	10 (20)	43 (86)	42 (84)	95 (63.33)	
Caste					7.12NS; 6
GM	02 (04)	02 (04)	--	04(06)	
OBC	33 (66)	30 (60)	30 (60)	93 (62)	
SC	08 (16)	12 (24)	17 (34)	37 (24.67)	
ST	07 (14)	06 (12)	03 (06)	16 (10.67)	
Family Type					14.87*; 2
Nuclear	26 (52)	8 (16)	21 (42)	55 (36.67)	
Joint	24 (48)	42 (84)	29 (58)	95 (63.33)	
Family Size					2.86 NS; 4
Small (1 - 3)	03 (06)	07 (14)	06 (12)	16 (10.67)	
Medium (4 - 5)	31 (62)	27 (54)	24 (48)	82 (54.67)	
Large (>5)	16 (32)	16 (32)	20 (40)	52 (34.67)	
Education					18.94*; 8
Illiterate	26 (52)	09 (18)	14 (28)	49 (32.67)	
Primary	12 (24)	23 (46)	24 (48)	59 (39.33)	
High	08 (16)	13 (26)	08 (16)	29 (19.33)	
Pre-University	03 (06)	05 (10)	04 (08)	12 (08)	
Graduate	01 (02)	--	--	01 (6.67)	
Occupation					1.22 NS; 2
Agriculture	29 (58)	33 (66)	34 (68)	96 (64)	
Sheep Farming	21 (42)	17 (34)	16 (32)	54 (36)	

Land Holding (Acres)					20.29*; 6
Landless	06 (12)	03 (06)	07 (14)	16 (10.67)	
<1	13 (26)	03 (06)	03 (06)	15 (10.00)	
1 to 4	25 (50)	41 (82)	39 (78)	63 (42.00)	
>4	06 (12)	03 (06)	01 (02)	10 (6.67)	
Total Annual Income (Rs)					-
Low (<25000)	11 (22)	05 (10)	-	16	
Medium (25000-50000)	23 (46)	36 (72)	-	59	
High (>50000)	16 (32)	09 (18)	-	25	
Income from Sheep (Rs)					20.62*; 4
Low (<15000)	08 (16)	02 (04)	05 (10)	15 (10)	
Medium (15000 – 20000)	22 (44)	17 (34)	05 (10)	44 (29.33)	
High (>20000)	20 (40)	31 (62)	40 (80)	91 (60.67)	
Experience in Sheep farming (Years)					9.76*; 4
Low (<10)	28 (56)	22 (44)	17 (34)	67 (44.67)	
Medium (11-20)	08 (16)	15 (30)	09 (18)	32 (21.33)	
High (>20)	14 (28)	13 (26)	24 (48)	51 (34)	

(Figures in parenthesis are percentage), Note: NS – Non significant; *Significant at $p < 0.05$

Table-2 Mean $\pm$ SE values of certain socio-economic and management variables related to Sheep farming

	CDZ	SDZ	STZ	Pooled
Other Livestock species of owned				
Cattle	1.90 $\pm$ 0.23 ^a	2.86 $\pm$ 0.26 ^{ab}	3.24 $\pm$ 0.29 ^b	8.00 $\pm$ 0.78
Buffalo	0.40 $\pm$ 0.15 ^a	1.20 $\pm$ 0.19 ^b	0.96 $\pm$ 0.28 ^{ab}	2.56 $\pm$ 0.62
Poultry	NA	3.98 $\pm$ 0.55 ^a	3.94 $\pm$ 0.85 ^a	3.96 $\pm$ 0.55
Flock structure of Sheep				
Male				
Adult	5.56 $\pm$ 0.61	3.92 $\pm$ 0.53	4.94 $\pm$ 0.43	4.81 $\pm$ 0.31
Young	10.09 $\pm$ 1.27	1.22 $\pm$ 0.18	5.26 $\pm$ 1.12	5.37 $\pm$ 0.62
Female				
Adult	57.26 $\pm$ 5.91	11.20 $\pm$ 1.44	30.30 $\pm$ 3.55	32.92 $\pm$ 2.80
Young	13.60 $\pm$ 1.81	2.70 $\pm$ 0.40	6.58 $\pm$ 0.92	7.30 $\pm$ 0.74
Total	86.51 $\pm$ 9.61 ^a	19.04 $\pm$ 2.55 ^b	47.08 $\pm$ 6.02 ^c	49.59 $\pm$ 3.85
Flock structure of Goats				
Male				
Adult	4.94 $\pm$ 2.39	1.86 $\pm$ 0.22	2.66 $\pm$ 0.30	2.63 $\pm$ 0.40
young	4.00 $\pm$ 1.14	0.30 $\pm$ 0.10	1.85 $\pm$ 0.26	1.42 $\pm$ 0.26
Female				
Adult	13.10 $\pm$ 3.17	3.08 $\pm$ 0.44	4.76 $\pm$ 0.72	5.50 $\pm$ 0.74
Young	6.93 $\pm$ 2.12	1.22 $\pm$ 0.16	1.97 $\pm$ 0.20	2.33 $\pm$ 0.37
Total	28.97 $\pm$ 5.29 ^a	4.3 $\pm$ 0.63 ^a	6.73 $\pm$ 0.92 ^a	8.33 $\pm$ 1.11
Male : Female ratio				
	25.19 $\pm$ 2.95 ^a	19.28 $\pm$ 1.15 ^a	21.60 $\pm$ 1.98 ^a	22.35 $\pm$ 1.20
Annual Veterinary expenses (Rs)	5132.65 $\pm$ 536.94 ^a	1308.89 $\pm$ 218.65 ^b	7277.78 $\pm$ 1347.27 ^a	4589.21 $\pm$ 520.19

Note: Means between the zones, bearing different superscripts are statistically significant at $P < 0.05$

Note: NS – Non significant; * - Significant at $p < 0.05$; ** - Non significant at $p < 0.01$

The highest number of joint families was observed in SDZ (84 %) and the other two zones followed the general trend resulting in a significant difference between the zones with respect to the type of families. Prevalence of middle to old aged sheep farmers in vast majority who belonged to backward class and scheduled castes which indicated that sheep farming in this region was more traditional and being transferred as an enterprise to the next generation through their ancestors. The decline in population was correlated with the fact that younger people showed disinterest in sheep rearing and were deviated themselves towards other less labour intensive and more remunerative activities [1, 2]. About 54.67 percent of family belonged to medium type (4- 5 members per family) of family size followed by large (> 5 member; 34.67 %) and small families (1- 3 members; 10.64 %). This trend was observed uniformly all across the zoned indicating a non-significant difference between the three zones. The education level of the sheep farmers was analysed in this study and found almost equal level of illiterates and primary level education as of 32.67 and 39.33 percent, respectively. The literacy level up to High school, pre-university and graduate level was found to be of 19.33, 08.00 and 0.67 percent, respectively. Proportion of illiterates was found to be highest in CDZ and the differences across the zones was shown significant. A low level of literacy was observed among the sheep farmers and the types of families were joint type [3, 4]. Although nuclear type of families was predominated in southern and northern zones of Tamil Nadu, the flock size of sheep was efficient enough to be managed by the family members. The joint family structure and non-availability of labour were the reason behind most of the flocks adopting family labour [5]. Agriculture was the primary occupation of 64 percent of the sheep farmers followed by 36 percent depending on sheep husbandry and the difference was non-significant, whereas a significantly different land holding pattern were recorded as 42 percent of the respondent were small to semi-medium farmers holding 1- 4 acres of land, while 10.67 percent and 10.00 percent of them were either landless or very small farmers (< one acre), respectively. The income from sheep farming was of medium to high nature (29.33 % and 60.67 %, respectively) but the zonal variations were significant. Agriculture was the main occupation with small to semi-medium farm holdings [6, 7]. The region being highly agriculture intensive and the cropping pattern as well as land holding pattern of the farm household were in support of the above findings. Most of the sheep farmers had low experience (< 10 years) of sheep rearing (44.67 %) followed by 34 percent highly experienced (>20 years) and 21.33 percent of them being medium experienced (11- 20 years). These findings varied significantly between the zones. The experience of the sheep farmers was low to medium since many of the respondents surveyed were new to the enterprise [7]. The differences noticed across the zones comprehend the fact that highly experienced respondents were from traditional sheep rearing background. Little higher level of experience among the sheep farmers was also evident [1, 2 and 6].

Table-3 Possession of Vehicles and other domestic gadgets by Sheep farmers across different Agro-climatic zones

	CDZ	SDZ	STZ	Pooled
Cycle	24 (48)	21 (42)	07 (14)	52 (34.67)
Motor cycle	18 (36)	30 (60)	13 (26)	61 (40.67)
Mobile	45 (90)	50 (100)	15 (30)	110 (73.34)
Radio	01 (02)	06 (12)	05 (10)	12 (00.08)
TV	41 (82)	43 (86)	32 (64)	116 (77.34)

(Figures in parenthesis are percentage)

Flock size of Sheep

The overall flock size of sheep observed in the present study was 44.59 ± 3.85 . Highest flock size of sheep was observed in CDZ (86.51 ± 9.61) followed by STZ (47.08 ± 6.02) and SDZ (19.04 ± 2.55). The differences between the zones were significant ($p < 0.05$) [Table-2]. The young and the adult animal's composition was 23.92 and 76.08 percent, respectively. The average possession of other livestock including cattle, buffalo and poultry was 8.00 ± 0.78 , 2.56 ± 0.62 and 3.96 ± 0.55 , respectively [Table-2], which differed significantly across the zones ($p < 0.05$). Television and mobile phones were possessed by vast majority of sheep farmers as 77.34 and 73.34 percent, respectively. Motor cycles (40.67 %) and bicycles (34.67 %) also found to be significantly associated with day to day routines of the sheep farmers. The percentage values particular to these vehicles was highest in

CDZ and lowest in STZ [Table-3]. The possession of domestic items like television, mobile phones and motor vehicles indicated that they were financially stable and are in terms with the advancement of social life [8]. The farmers possessed varied livestock species from poultry to cattle in support of their primary occupation. Findings in the present study showed that farmers depend on multiple species of livestock for their subsistence rather on single species [3, 5]. The other livestock species served as source of inputs for products required for domestic consumption i.e. buffaloes for milk, Chicken for eggs and meat, native cattle for draught and dung etc. The flock structure and size were influenced by their socio-economic status and also depended on certain occasions (festive, ceremonial functions etc.). Flock comprising ram, ewes and lambs were very common conforming to the standards of composite flock structure [2, 4 and 9]. Since the farmers preferred local non-descript and native breeds of sheep as the breeding was completely natural, highest majority of the flocks composed the breed of sheep, which either conformed to the standards of native breed i.e., Hassan or cross bred of Hassan sheep with local sheep. Native breeds were choice of animals by the local sheep farmers in a particular region which was also observed in the present study [10].

Conclusion

The socio-economic profile of the sheep farmers revealed that majority of the sheep farmers of this area were either illiterates or educated up to primary level and majority belonged to backward class category followed by schedule castes and tribes. Most of the sheep farmers were middle to old aged and belonged to the joint type of families, indicating that sheep farming is mostly traditional and family labour was enough to maintain their flock. The findings also indicated that younger generations were deviating away from sheep farming in search of less labour intensive and lucrative jobs. Flock comprising ram, ewes and lambs were very common. The flock size maintained were optimum enough to be maintained by family labour itself without depending on hired labour.

Application of research: The study has policy implications and forms the basis for formulating sheep development programmes.

Research Category: Sheep development programmes

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Ethical Committee Approval Number: Nil

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