AN EXPLORATORY STUDY ON BANNUR SHEEP

DINAKAR, H.P.

DEPARTMENT OF VETERINARY AND ANIMAL HUSBANDRY EXTENSION EDUCATION

VETERINARY COLLEGE, HEBBAL, BENGALURU-560 024

KARNATAKA VETERINARY, ANIMAL AND FISHERIES SCIENCES UNIVERSITY, BIDAR-585 401

FEBRUARY, 2013

AN EXPLORATORY STUDY ON BANNUR SHEEP

Thesis submitted to the

KARNATAKA VETERINARY, ANIMAL AND FISHERIES SCIENCES UNIVERSITY

in partial fulfillment of the requirements

for the award of the degree of

MASTER OF VETERINARY SCIENCE

in

VETERINARY AND ANIMAL HUSBANDRY EXTENSION EDUCATION

By

DINAKAR, H.P.

DEPARTMENT OF VETERINARY AND ANIMAL HUSBANDRY EXTENSION EDUCATION

VETERINARY COLLEGE, HEBBAL, BENGALURU-560 024

KARNATAKA VETERINARY, ANIMAL AND FISHERIES SCIENCES UNIVERSITY, BIDAR-585 401

FEBRUARY, 2013

KARNATAKA VETERINARY, ANIMAL AND FISHERIES SCIENCES UNIVERSITY, BIDAR-585 401

DEPARTMENT OF VETERINARY AND ANIMAL HUSBANDRY EXTENSION EDUCATION VETERINARY COLLEGE, HEBBAL, BENGALURU

CERTIFICATE

This is to certify that the thesis entitled "***AN EXPLORATIVE STUDY ON BANNUR SHEEP***" submitted by **Mr. DINAKAR, H.P., I.D. No. 1019** for the award of degree of **MASTER OF VETERINARY SCIENCE in VETERINARY AND ANIMAL HUSBANDRY EXTENSION EDUCATION** to the Karnataka Veterinary, Animal and Fisheries Sciences University, Bidar is a record of research work carried out by him during the period of his study in this University, under my guidance and supervision and the thesis has not previously formed the basis of the award of any degree, diploma, associate ship, fellowship or other similar titles.

Bengaluru
February, 2013

Dr. K. SATYANARAYAN
Major Advisor
Professor & Head
Dept. of Veterinary and Animal Husbandry Extension Education

APPROVED BY:

Chairperson : _____
Dr. K. SATYANARAYAN

Members : **1.** _____
Dr. M. R. JAYASHANKAR

2. _____
Dr. V. JAGADEESWARY

3. _____
Dr. K.C. VEERANNA

Affectionately Dedicated to

My Reverend Parents

Putta Swamy. K, Hosahally

Siddammanni. B. Alur

ACKNOWLEDGEMENT

With ever lasting memories

I take this opportunity to look back on the path traversed during the course of endeavor and to remember the guiding faces behind the task with a sense of gratitude.

I express my deep sense of gratitude and warm regards to ***Dr. K. Satyanarayan,*** *Professor and Head, Department of Veterinary and Animal Husbandry Extension Education, Veterinary College, Bengaluru and Chairman of my Advisory Committee. He was very helpful to me throughout the course of my study. His valuable guidance, inspiration and advice helped me to grow in my professional and academic competence. I will always remember with gratitude the innumerable ways he has influenced my life during my course.*

It gives me immense pleasure to convey my sincere thanks to ***Dr. M. R. Jayashankar,*** *Professor, Department of Animal Genetics and Breeding, Veterinary College, Hebbal, Bengaluru for his valuable guidance, sincere advice, and support throughout this study as member of the advisory committee.*

I am extremely grateful and indebted to ***Dr. V. Jagadeeswary,*** *Assistant Professor, Department of Veterinary and Animal Husbandry Extension Education, Veterinary College, Bengaluru for her inspiring guidance, valuable suggestions and constant encouragement, as a member of the advisory committee.*

I am also thankful to ***Dr. K. C. Veeranna,*** *Professor and Head, Department of Veterinary and Animal Husbandry Extension Education, Veterinary College, Shimoga for his constant help and valuable suggestions during my research work.*

My deep sense of gratitude and profound thanks to ***Dr. Surendra,*** *Associate professor, Department of statistics, U.A.S, Bengaluru and* ***Dr. K. Shivaramu,*** *Associate professor, Department of Agriculture Extension, Agriculture College, Mandya, for their valuable suggestions and help during my research work.*

I am thankful to ***Dr. Rajeshwary, Y.B,*** *Professor, Department of Livestock Production and Management and* ***Dr. Jayashree,*** *Assistant Professor, Department of*

Animal Genetics and Breeding for their valuable suggestions and constant encouragement throughout my coursework.

Special thanks to ***Mr. Satish, J, Mr. Shivakumar, J, Mr. Papanna*** *and* ***Mr. K, Eraiah*** *for their help in providing required information during my research work.*

I wouldn't forget to thank the help rendered by ***Dr. Mahadevaiah, C. Umashankar*** *and* ***Shivaswamy*** *during my research work.*

My deep sense of gratitude and profound thanks to my departmental colleagues ***Dr. Ajith, B., Dr. Ananth Rao Desai, Dr. Harisha M. and Dr. Mahesh Savanur*** *for their help during my course work and research work. I extend my gratitude to* ***Dr. Dechamma K. P*** *and* ***Dr. Somashekhar Hebbagonde*** *for their help during my course work. I also thank* ***Mr. Chandrashekar and Mrs. Venkata Lakshmi,*** *Department of VAHEE for their help during my research work.*

Needless to mention, I am grateful to my parents and all my family members who have provided me with love, support and confidence, My sincere thanks to my dearest brothers ***Dr. H .P. Revanna, Er.H .P. Raj Shekar Murthy, Dr. H P. Prabhu Swamy*** *and my sisters* ***H .P .Rajeshwari*** *and* ***H. P. Komala.***

On a personal note, my heartfelt thanks to my wife ***Sunitha.G*** *and my little son* ***Sheshikiran. D*** *for their support extended throughout my study period.*

I am extremely thankful to my elder son ***Mr. Suhas Revanna*** *for all the support and the help he provided me during my course work and also research work.*

I am extremely grateful to ***Dr. K. T. Pandurange Gowda****, Associate Director of Research,* ***Dr. S. B. Yogananda*** *S.F.S., Zonal Agriculture Research Station, V.C. Farm, Mandya for their co-operation and encouragement during the course of study.*

Last but not least, I would like to thank The Almighty himself for keeping me in good health during the course of studies.

Any omission in the brief acknowledgement does not mean lack of gratitude.

Bengaluru

February *(DINAKAR, H.P.)*

CONTENTS

CHAPTER	TITLE	PAGE No.
I	INTRODUCTION	1-5
II	REVIEW OF LITERATURE	6-23
III	MATERIALS AND METHODS	24-46
IV	RESULTS	47-80
V	DISCUSSION	81-94
VI	SUMMARY	95-100
VII	BIBLIOGRAPHY	101-106
VIII	ABSTRACT	107
IX	APPENDICES	108-116

LIST OF TABLES

TABLE No.	TITLE OF TABLES	PAGE No.
1	Socio-economic and psychological variables	31
2	Classification of respondents by age, Education and Family size	49
3	Classification of respondents by Occupation, Land holding, Income and Fodder Production	51
4	Classification of respondents by Possession of Bandur sheep	54
5	Classification of respondents by Possession of Other Livestock	56
6	Classification of respondents by Organizational Participation	57
7	Classification of respondents based on visit of sheep farming centers	60
8	Classification of respondents by Extension Contact	60
9	Classification of respondents by Extension Participation	62
10	Classification of respondents by Mass Media Participation	64
11	Classification of respondents by Economic Orientation	66
12	Classification of respondents by Scientific Orientation	66
13	Opinion of Sheep farmers on Bandur sheep rearing	66
14	Adoption on sheep rearing Practices	68
15	Respondents Response on Rearing Practices	68
16	Respondents Response on Breeding Rams	69
17	Rearing Practices in Lambs	71
18	Common Diseases, ITK's and Vaccinations in Bandur sheep	73
19	Marketing Methods of Bandur sheep farmers	74
20	Advantages and Disadvantages of Different Marketing Channels	76
21	Respondents Response on Marketing channels of Sheep	76
22	Economics of Bandur sheep rearing	78
23	Constraints in Bandur sheep farming as expressed by the farmers	78

LIST OF FIGURES

Figure No.	TITLE OF FIGURES	Page No.
1	Map showing Karnataka State with Districts and Taluks	29
2	Sampling procedure	30
3	Providing green fodder during night hours	41
4	Marking with colors by the Bandur shepherds for identification of the flock	41
5	Processing of dry fodder for feeding	42
6	Storage of horse gram husk to feed the sheep during non grazing hours	42
7	Shearing of sheep	43
8	Housing of Bannur sheep	43
9	Housing of sheep	44
10	Breeding Ram	44
11	Tethering of breeding ram separately from ewes	45
12	Grazing of sheep in the waste lands	45
13	Returning to the shed after grazing	46
14	Flock of Bandur sheep	46
15	Classification of Respondents based on Age, Educational and Family size	50
16	Main occupation	52
17	Annual Income	52
18	Land holdings	52
19	Fodder production	52

20	Classification of Respondents based on Possession of Bannur Sheep	54
21	Classification of Respondents based on Organizational Participation	57
22	Expenditure on Bannur sheep	79
23	Income from Bannur sheep	79
24	Economics of Bannur sheep	79
25	Constraints in Bannur sheep farming as expressed by the farmers	80

INTRODUCTION

I. INTRODUCTION

Livestock sector plays a crucial role in sustainable contribution to rural development in the state. It is closely integrated with the existing farming system on mutually exclusive basis and interdependence with each other for augmenting food and nutritional security of farm households and socio-economic status in the society by utilizing all available agriculture waste, byproducts and common property resources. It is the best insurance against the vagaries of nature due to drought, famine and other natural calamities.

Livestock contributes by way of milk and meat production. It enhances soil fertility and crop production through their manure and urine. It also provides additional economic goods like skin, hides wool etc., for trade and commerce activities. Besides, they render services in the form of animal power in croplands, carrying of agriculture goods and transportation of people. In addition, they provide year round gainful employment and dispersed risks evenly and greatly thus minimize the suicidal attitude of the farmers. Sale of livestock products provides timely revenue. Hence sheep and goats are treated as "moving banks" at rural places for immediate cash revenue which enable to purchase crop inputs as well as to finance other farm investments. Thus livestock plays a vital role in enhancing the economic viability and sustainability of farming systems.

According to Livestock Census, Department of Animal Husbandry, Dairying & Fisheries, Ministry of Agriculture (2007), India has got 199.10 million cattle, 105.30 buffaloes, 71.60 million sheep and 141 million goats. Majority of India's population lives in rural areas, consequently there is likely to be more pressure on land as almost all the

village population depends on agriculture, resulting in an unfavorable land man ratio. Owing to the population explosion and with the increasing pressure on land, agriculture alone cannot provide gainful employment to all the rural population. Therefore, allied activities like animal husbandry will have to be viewed as effective instrument for supplementing the income and providing employment to the weaker sections in rural areas.

The domestication of animals was noticed during the Neolithic times along with the cultivation of cereals. Sheep and Goat husbandry was practiced by man earlier to crop husbandry, because it provided him ready source of food and clothing. Sheep have an inseparable identity with the farmers in India from time immemorial. They constitute an important component of agriculture and economy of the farming community in India, especially those of the weaker sections among agriculturists. They form substantial income particularly by the sale of surplus ram lambs, wool, unproductive and aged animals and manure. The migratory sheep are folded in the harvested croplands of the farmers during night hours and in return they get either food grains or price for the manure.

Bannur sheep also called as Bandur or Mandya breed has been acclaimed to be one of the most important and dominant indigenous breeds of Karnataka and India. Its meat is being treated at National and International spectrum of sheep products as most nutritious and high quality mutton in the diets of human beings. Bannur breed of sheep is pre-dominantly distributed in Mandya and adjacent districts. Bannur breed has been in limelight ever since its development and continues to be the only outstanding mutton

breed. This breed was used as one of the parental indigenous breed to develop other improved breeds.

Bannur sheep in its home tract over centuries implies not only its inherent adaptability but also confirms its multi-utility under different farming systems of the native tracts. This breed has been evolved naturally for adaptation to semi-arid region for both dry land agriculture and also irrigated areas. This has ability to survive and sustain prolong periods of drought, semi-starvation and thirst, but cannot travel long stretches of grazing land due to short legs because of which the sheep movement is restricted to small local area. Thus, this breed has made stamping impression on the society and the farmers in the native tract. However because of various reasons, the Bannur sheep is under the verge of extinction, thus a systematic investigation would help the farmers and the policy makers to arrive at a decision in conserving this valuable breed of sheep. Keeping all these in view the present study was under taken with the following specific objectives:

1.1 OBJECTIVES OF THE STUDY

1. To study the personal, socio-economic and psychological characteristics of Bannur sheep farmers
2. To explore the rearing pattern of the Bannur sheep farmers
3. To study the marketing patterns of the Bannur sheep farmers
4. To identify the possible constraints as foreseen by the farmers in Bannur sheep husbandry

1.2 SCOPE AND IMPORTANCE OF THE STUDY

Bannur sheep is one of the outstanding breed of Karnataka known for its quality mutton and it is predominantly distributed in some districts of southern Karnataka. However because of the various reasons, the Bannur sheep population is decreasing in the home tract.

The present study aimed to study the personal, socio-economic and psychological profile, to explore the rearing pattern, to study the marketing pattern and to identify the constraints of the farmers. This would help the farmers and the policy makers to arrive at a decision in conserving the valuable breed.

1.3 LIMITATIONS OF THE STUDY

The present study has limitation of the time and other resources available with the student researcher. However, considerable care and thought have been exercised in making the study as objective and systematic as possible. Further, the expressed opinion of the respondents, in the study, may not be free from personal biases and prejudices. It may however, be recognized that the findings of the study may not be generalized beyond the boundaries of the area under investigation and such other areas having similar agro climatic and socio-economic conditions.

1.4 PRESENTATION OF THE THESIS

The thesis has been presented in nine chapters. The first chapter covered introduction including the objectives, scope, importance and limitations of the study. Second chapter focused on review of literature. Third chapter explains in detail about the

information regarding the measurement of variables, sampling procedure, data collection and data analysis. The fourth chapter addressed the results. The fifth chapter deals with discussion of the study. The sixth chapter includes the summary in brief. The seventh chapter addressed the bibliography. The eighth and ninth chapter contains abstract and appendices respectively.

REVIEW OF LITERATURE

II. REVIEW OF LITERATURE

The investigation was undertaken to explore the ways of rearing Bannur sheep. The sheep farming communities are facing problems in the breeding tract as there is decrease in the quality of animals which have been linked to non availability of quality breeding rams, lack of organized efforts for breed improvement, and also continuous reduction in grazing area. Besides these, the tract is also plagued by non nutritious grasses and fodder. Hence the systematic study has been conducted to elicit the biodiversity of the breed home tract.

In this chapter the literature relevant to the present study has been critically reviewed on personal, socio-economic and psychological characteristics, their rearing & marketing patterns and constraints as foreseen by the farmers in Bannur sheep husbandry and is presented under the following sub heads.

2.1 THE PERSONAL, SOCIO-ECONOMIC AND PSYCHOLOGICAL CHARACTERISTICS OF BANNUR SHEEP FARMERS

Prabaharan and Thirunavakkarasu (1995) conducted a study in Tamil Nadu to assess the income and employment potential of goat rearing enterprise and found that the cost of production per herd per annum was Rs.1, 909/-, Rs.4, 130/- and Rs.6, 457/- for small (1-8 goats), medium (9-16 goats) and large farmers (above 16 goats) respectively out of which labor cost accounted for 74, 66 and 59 per cent, respectively. Annual net income was Rs. 1,200/- Rs.1879/- and Rs.6, 800 for small, medium and large herds, respectively.

A study on the Mecheri sheep farmers in Tamil Nadu reported that the average family household size of Mecheri sheep farmers was 4.33 ± 0.02 with literacy rate of 51.73 per cent. The percentage of farmers belonging to backward, most backward and other communities were 64.10 per cent, 29.50 per cent and 6.40 per cent respectively. The average annual family income was Rs. 19,432±202. The mean land holding size was 5.3±0.23 ha, of which, the irrigated and non irrigated land constituted 33 and 67 per cent respectively. The farmers with marginal, small, medium and large land holding size were 19.70, 34.95, 35.41 and 0.73 per cent respectively (Thiruvenkadan *et al.*, 2004).

Among the respondents with small farms (10-25 sheep) 14.28 per cent were illiterates, 42.86 per cent had primary education as compared to 18.18 per cent illiterates and 45.45 per cent possessing primary education in medium (26-40 sheep) farms. In large farms (>41 sheep), 48.33 per cent had primary education and none had collegiate level of education in any of farm size groups (Senthil Kumar and Meganathan, 2005).

A study conducted on the status of shepherds in Sonadi of Rajasthan by Tailor *et al.* (2005) expressed that the overall literacy rate (26.32%) in adult males was more than that of adult females (2.70%) and the average number of total livestock maintained was 5.31 units with 9.3 units of small ruminants and 2.80 units of large ruminants.

A study in western Rajasthan stated that 84.70 per cent of respondents indicated sheep farming as main occupation of which 81.18 per cent were marginal farmers with average land holding of 5.70 hectare /family. The literacy rate in male and female was 52 and 13 per cent, respectively (Porwal Kuldeep *et al.*, 2006).

Singh *et al.,* (2006) investigated the socio-economic aspects of sheep and goat flock owners in Himachal Pradesh and revealed that about 46 per cent of owners were small and 54 per cent were large farmers. The average family size and land holding varied widely according to flock-size. The average size of land holding was 0.30 ha for small and 0.77 ha for large flock-owners.

The literacy rate of goat keepers was 40 per cent. Sixty six per cent goat keepers were dependent on Agriculture and Animal Husbandry for livelihood and had annual income between Rs. 15,000-30,000.The majority of goat keepers had land holding size between 0.5–1.0 hectare. Among the total livestock maintained by goat keepers, 78.95 per cent were goats. The overall average goat holding of goat keepers was 22.96 and average flock size for landless farmers was 19.54 (Sharma *et al.,* 2007).

Tanwar *et al.*, (2008) revealed the socio-economic aspects of goat keepers in the tribal areas of Udaipur, Rajasthan State. The majority of the respondents belonged to 31-50 years of age group and was scheduled tribe, illiterate, medium size family and possessing small land holding.

Viroji rao *et al*., (2008) studied adoption of sheep husbandry practices in Andhra Pradesh and revealed that most of the farmers had poor socio-economic background with illiteracy.

Socio-economic status of goat keepers in south Gujarat region revealed that 64.92 per cent of the goat keepers had average flock size of 1–5 animals. The average annual income was less than Rs. 10,000/- per family in 74.26 per cent, while 4.91 per cent had

more than Rs. 30,000/- per annum. The literacy percentage was highest in children (73.09) followed by men (64.55%) and women (54.57%) respectively. Among the literary rate of women, 75.78% had primary level education. However, literacy percentage at secondary school level was higher in men (39.25%) followed by children (25.90%) and women (22.61%), respectively. The average annual income from sale of ram ranged between Rs. 6000 to 8000 depending upon the body weight and health condition (Deshpande *et al*., 2010).

Gupta *et al*., (2011) studied the economics of sheep and goat rearing in semi-arid region of Rajasthan. The study indicated that the literacy rate of the head of the small ruminant breeder household was 40 per cent. The average land holding size was 2.77 ha, with less than one-fifth of the area under irrigation. The average sheep and goat flock sizes were 52 and 16, respectively. The gross income from sheep farming was constituted by sale of animals (69.30%), manure (16.60%), milk (7.10%) and wool (7.00%).

Rajanna *et al.*, (2012) reported in their study at Andhra Pradesh that the average age of sheep farmer was 42.69 years and majority (70.31%) of the respondents belonged to middle age and illiterate category (74.65%). Majority (77.26%) of the sheep farmers had agriculture as their main occupation and the average sheep farming experience of 29.14 years. The study revealed that 71.53 per cent possessed medium family size with overall mean land holding of 2.47±0.09 acres. Majority of them had mean annual income of Rs. 54957. About 42.88 per cent of farmers possessed 50-100 sheep with mean flock size of 113.50±2.7.

2.2 REARING PATTERN OF THE BANNUR SHEEP FARMERS

The study on Sheep husbandry practices in Sonadi and Malpura breeding tract revealed that Sheep flocks are generally stationary and are kept in houses which are partially covered. Annual profit per sheep per year ranged from Rs. 15 to 49 (Mehta *et al.,* 1995).

The study on the production performance of Kutchi goats under different systems of feeding management expressed that the does maintained under semi-intensive system performed significantly better than those under intensive and extensive system in respect of live weight gains and milk production (Singh, 1998).

The study on adoption of improved sheep and goat husbandry practices in Pudukottai district of Tamil Nadu revealed that nearly 85 per cent of the participant farmers were in the medium and high level of adoption category. The extent of adoption of participant farmers was comparatively more than that of the non participant farmers. The recommended practices namely selection and purchase of quality animals, provision of shelter, feeding of colostrums to new born kids, feeding of crushed prosopis seeds and tamarind seeds, feeding of tree leaves in summer, deworming, vaccination and marketing of lambs at 8 months of age were adopted by majority of the participant farmers (Kumarvel *et al.,* 2007).

Tanwar *et al.,* (2007) studied on housing and breeding management practices adopted by goat owners in tribal area of Udaipur district. Goats housed near dwelling, loose housing as well as open yard are the common housing practices adopted by respondents. Flock mating is adopted and nondescript community buck was used for

breeding purpose. Animals come to heat generally during monsoon season. Single birth was common and placenta was disposed off either by throwing or by burring in heap of dirt.

Management practices and economics of sheep farming in eastern semi-arid region of Rajasthan revealed that the sheep were managed in extensive and semi-intensive feeding system and depended mostly on the common grazing land with very less supplementation of concentrate mixture. The fodder trees were important feed sources. Short-term migration of sheep was practiced by 23 per cent farmers. The average net return per flock was nearly Rs. 25000 per year with average net return per animal of Rs. 456. Goat farmers neither protected pasture land nor preserved the tree leaves. The green fodder was fed by 60.28 per cent goat farmers. Lopping of trees was a routine practice for goats during grazing. Majority of goat keepers provided 100 to 200gms concentrate to their goats prior to milking (Suresh *et al.,* 2008).

Viroji rao *et al*., (2008) studied on adoption of sheep husbandry practices in Andhra Pradesh. Majority were rearing the native Nellore Jodpi – a hairy coated leggy breed with small flock sizes ranging from 25 to 50. Non adoption of ram rotation, periodic culling of unproductive ewes, flushing, supplementary feeding of pregnant and lactating ewes and weaning indicated the very low level of adoption of management practices. Immunization for endemic diseases is followed at the behest of Animal Husbandry department. Health care measures are followed to the moderate extent only. Because of significant influence of the stockists, the farmers were depending on them for selection of suitable deworming agents rather than a veterinarian leading to

exploitation. Cooperative sector was defunct, which resulted in exploitation by the middlemen in the marketing.

The investigation in south Gujarat region revealed that majority of goat keepers detected estrus on the basis of symptoms viz. mounting on each other, bleating, tail vibration and frequent urination. However, mounting on each other was the most reliable symptom for detection of estrus in the goats. The breeding of females was strictly done through natural service and majority of goat keepers (65.89%) used bucks from their relatives. However, they were keen to change the buck after first kidding (51.41%) or second kidding (48.59%). Majority (73.21%) of goat keepers preferred the castration of male kids to fetch more prices. Vaccination of goats against different diseases prior to monsoon was done by 69.19 per cent goat keepers. However, deworming practice and measures to control ectoparasitic infestation were adopted by only 22.04 per cent and 9.49 per cent goat keepers respectively. Majority of goat keepers (73.45%) called the livestock inspector for treatment of sick animals (Deshpande, 2009).

Gurjar *et al*., (2009) studied the feeding practices of goats adopted by the farmers of Mewar region of Southern Rajasthan, Their study revealed that eighty seven per cent goat keepers adopted semi-stall feeding system and grazed their goats on community pasture land for more than 5 hours daily. Majority of the respondents provided concentrate to their male kids for early maturity. Sixty nine per cent of goat farmers provided common salt, while only 3.61 per cent provided mineral mixture to their goats.

Verma and Sharma (2009) studied the knowledge of sheep farmers on improved production technologies. They had high level knowledge on improved feeding followed

by management, breeds and breeding technologies. Further, the study exhibited a significant difference with regard to knowledge levels of small, medium and large sheep farmers.

Yadav and Khada (2009) studied the management practices and performance of goats in tribal belt of Dungarpur district in Rajasthan. The study indicated that majority of the goats in the tribal belt were kept in open and closed houses with kucha roof and floor with full boundary wall attached to the residential housing The average birth weight of male and female kids was 2.10 kg and 1.90 kg, respectively. The age at sexual maturity, age at first kidding, kidding interval and gestation length and service period were found to be 315.62, 436.52, 308.66, 150.34 and 158.89 days respectively.

The study conducted in Ambajogai taluka of Beed district of Maharashtra State found that goat keepers usually did adopt the improved feeding practices (Lahoti and Chole., 2010).

In Wayanad district of Kerala, very few women had correct knowledge about important aspects of breeding, housing and deworming of goats. Nearly three fourths of them had appropriate knowledge about vaccination against foot and mouth disease (Reeja *et al*., 2010).

Tailor and Yadav (2010) studied the feed resource availability and growth performance of Sonadi sheep in their native tract. The study revealed that, Sonadi sheep are reared mainly on grazing and the farmers give no supplementation to them.

Thombre *et al.*, (2010) studied the adoption of goat rearing practices in Osmanabad district. The category wise adoption index was presented in which breeding practices for goat obtained more adoption index (66.89) followed by feeding practices for newly born kid (51.81), feeding practices for goat (45.48) and health care practices (32.55). The overall adoption index was 47.92. Non-availability of veterinary services in the village in time (80.55 %) followed by costly veterinary services (76.38) inadequate and untimely loan supply (68.05 %) were major problems faced by the goat keepers.

Yadav and Tailor (2010) studied the grazing and housing practices in Southern part of Rajasthan. The results indicated that the effect of season was found to be significant on grazing hours within the district. The total time spent for grazing was significantly lower during winter as compared to summer and rainy season. The housing for sheep was open and mixed type with kutcha roof, floor and boundary wall. Such type of shed is not only economical but also comfortable to animals during extreme temperature.

A study on management of goats in Mahabubnagar, Nalgonda and Ranga Reddy districts of Andhra Pradesh revealed that closed type of housing system was adopted by 60 per cent of farmers with thatched roof and kutcha floor. The common feeding practice was grazing (72%), while 27.33 per cent farmers supplemented their animals with concentrates, crop byproducts, etc. during lean periods. The overall flock size was 43.69 ± 1.70 and 58 per cent farmers maintained 26 to 50 goats per flock under field conditions. Majority of the farmers followed 1:21 to 30 sex ratio in their flocks and they did not rotate the breeding bucks as well as did not select breeding males and females.

Deworming (82.08%), deticking (6.67%) and vaccination (18.67%) schedules were followed as preventive health measures. Most of the goats were disposed off at villages as per the wishes of butcher, middlemen and traders based on the animal size and shape (Gupta *et al*., 2011).

Meena *et al*., (2011) studied the goat keepers adoption of improved goat production practices. Results indicated that more than half of the respondents possessed medium level of adoption and higher adoption about clean milk production followed by management, feeding, breeds and breeding practices. There was significant difference in adoption levels between different categories of respondents with regard to breeds and breeding, feeding and management practices of goat production technology. The overall extent of adoption in general was found to be highest in large flock owners followed by medium and small having mean per cent scores of 55.54, 45.70 and 34.80, respectively.

A survey conducted to study the rearing practices, morphological characteristics and growth performance of Muzaffarnagari sheep in the breeding tract revealed that flocks were mainly maintained by Pal/Gadaria and Khatik communities on extensive system. Animals were shorn twice in a year using hand scissors (Dass gopal *et al*., 2012).

Tanwar and Chand (2011) studied the management practices adopted by goat keepers of Jaipur district of Rajasthan. The study revealed that, 88.33 per cent of the farmers supplemented with dry fodder while only 30.83 per cent supplemented with green fodder to their goats. Grain supplementation to lactating goats was adopted by 79.19 per cent. The concentrate mixture was usually provided @ 200–300 g / day to lactating goats by 56.84 per cent of farmers. Practice of providing mineral mixture and

common salt to goats was adopted by 7.08 per cent and 25.42 per cent of farmers. The duration of daily grazing of flock ranged significantly from 7.67±0.06 hr (winter) to 9.88±0.10 hr (summer).

Sakthivel *et al*., (2012) conducted a study on management practices followed by goat farmers of Namakkal district of Tamil Nadu. The study revealed that goats were mostly housed in thatched shed with mud flooring. They were fed tree leaves, crop residues and the fodder. Bleating, mounting and wagging were the signs used for heat detection and natural service followed by breeding of goats. Pregnancy diagnosis was mainly done based on abdominal appearance. Majority of the farmers reported that they have not faced any major disease problems. Foot and mouth disease was the only disease for which animals were vaccinated. Generally deworming was done in kids below the age of 3 months. Most of the farmers sold their goats at the age of 4–6 months in village weekly markets to meet the family needs. The study revealed there is a need to create awareness on scientific practices of goat rearing.

The study on Goat management practices adopted in Jaipur district of Rajasthan indicated that majority (94.58%) of them provided katcha floor for the goat houses. Nearly 50 per cent of farmers constructed goat houses near to human dwelling. Small farmers with limited number of goats housed them in human dwelling. Majority (92.08%) of goat farmers used locally available thatch material for construction of roof. Boundary walls of goat houses were made with dry twigs of Khejri (Prosopis cineraria), Keekar (Acacia nilotica) and Pala (Zizyphus nummularia) bushes. Majority (87.92%) of the farmers housed males and females together but kids separately. Daily cleaning of goat

house was practiced by 66.25 per cent of farmers. Deworming of goats was practiced regularly by 44.58 per cent of farmers. Only 23 per cent of farmers adopted vaccination against common infectious diseases. Majority (68.33%) of the farmers preferred village Gunni for treatment of sick goats, however 57.63 per cent of large farmers approached veterinarian for treatment (Tanwar and Rohilla, 2012).

2.3 MARKETING PATTERNS OF THE BANNUR SHEEP FARMERS

Marketing of Barbari goats in Etah district of Uttar Pradesh revealed that goat farmers periodically sold goats mostly for slaughter and few for rearing. However more sales were affected before the major festivals to meet the heavy demand for meat. Goat farmers transported most of their goats for sale in market where goats were sold through commission agents. The major buyers in the market were big traders and city wholesale meat dealers. The marketing cost per goat was highest in small category and found to be Rs. 53.29 followed by medium category (Rs 48.76) and the lowest marketing cost per goat was in large category (Rs 46.26). The average prices ‘per head’ ‘per pair’ and ‘per group’ were fixed through bargain and open sale system. Sometimes the prices were also decided through under cover system. The price spread was much higher in cases where more middlemen and distance were involved. Primary producers were getting 72.9 per cent share for their produce whereas petty traders, high traders and wholesale meat dealers received 10.2 per cent, 7.5 per cent and 9.4 per cent share respectively (Deoghare, 2001).

Shinde *et al.,* (2003) studied the economics of goat rearing in Rajasthan. Cost of animal constituted 80.64 per cent and equipment 3.87 per cent of total investments in

initiation of the goat rearing ventures. Total cost incurred in goat rearing was Rs.1.425.95 and Rs. 683.45/goat/year. The income from sale of milk, surplus animals and manure constituted 50.64 per cent, 39.42 per cent and 9.92 per cent of total receipts. The gross income obtained per goat per year was Rs.911.30 and net income per goat per year was Rs. 277.85. The B:C ratio was found to be 1:1.34. It was concluded, that goat rearing is reasonably remunerative providing Rs.1.34 against every rupee invested.

Arun Pandit and Dhaka (2005) studied the marketing of goats in the four animal markets of Nadia and Hooghly districts of central alluvial plains of West Bengal. Five marketing channels were found in male goat marketing viz., channel –1 farmer to farmer, channel –II farmer to butcher, channel-III farmer to local trader to butcher, channel-IV farmer to distant trader to farmer and channel-V farmer to distant trader to butcher. The majority of the goats were transacted through the channel III. No broker was found in the marketing of goats in the study area.

The analysis on costs and returns from sheep and goat farming in Mahendergarh and Gurgaon district of Haryana revealed that the annual average total cost per sheep farm worked out to be Rs.26.674 while on goat farm it was Rs.12.169. The average net returns from sheep and goat rearing were Rs. 4.983 and Rs. 16.605 respectively (Jitender *et al.,* 2005).

Srivastava and Saraswat (2006) studied and reported the marketing pattern of goats in Jaunpur district of eastern Uttar Pradesh, and concluded that goat keepers frequently sold their goats for slaughter .On an average, the market cost per goat was

Rs.66.80. It indicated that the marketing cost per goat correlated negatively with the size of flock.

Lavania and Singh (2008) investigated the Goat marketing practices in Southern Rajasthan and found that trade was not monopolistic and farmers did not complain about price fixing. Majority of the goat farmers in the village sold their goats to petty traders. However, a small percentage of farmers sold their goats directly to rural and semi urban butchers. The income from goat rearing was mainly utilized to fulfill the family needs.

Gurjar *et al*., (2008) conducted survey on the Health care and marketing practices of goats in Mewar region of Southern Rajasthan and found that the majority of goat shepherds practiced deworming (64.17%), vaccination (35.28%) and control to ecto-parasites (49.72%) in a scientific manner. Most of the goat farmers preferred to sell their animals in their own village round the year on the basis of physical appearance and owners used goat milk for their home consumption. Significant effect of flock size was observed on deworming, marketing of animals and use of goat milk. However, other health care practices, time of sale and selling criteria used by respondents were not significantly influenced by the flock size.

Senthilkumar *et al*., (2012) studied the Small ruminant marketing practices in southern Tamil Nadu and they found that, the majority of farmers preferred to sell animals in their own villages itself to reap the benefits of negotiation. The modes of transportation of sheep and goats to bring them to the market were mainly through jeep/truck followed by walking and auto rickshaws. The main reasons for selling the animal was urgent need of money (marked by 52.73 and 58.46%), fodder scarcity

(21.82%) and fear about sickness. The most common criterion used by respondents for selling of animals was based on muscle thickness at loin and thigh region. In most of the cases trading was based on muscle thickness of animals at loin and thigh region. It was observed that 50 to 60 per cent of respondents sold male kids below 6 months of age.

Tanwar and Rohilla (2012) conducted a survey on Goat management practices adopted by farmers in Jaipur district of Rajasthan. They revealed that most (92.08%) of the farmers sold goats to the local traders in their own villages. Physical appearance of the animals was considered as the main criteria for selling (48.33%) of animals. Majority of male kids were sold within 7–12 months of age.

2.4 CONSTRAINTS IN BANNUR SHEEP HUSBANDRY

Prabaharan and Thirunavakkarasu (1994) identified the constraints in goat farming in seven agro-climatic zones of Tamil Nadu as inadequate fodder, grazing lands and exploitation by middlemen.

Eswara and Radha (1996) in their study on sheep and sheep products marketing in Karim Nagar district of Andhra Pradesh concluded that about 60 per cent of the respondents felt marketing place as their main problem. They also found that about 75 per cent of the respondents had the problem of technical know-how and lack of information about marketing functionaries.

Sagar and Ojha (1998) studied the goat farmer's perception of the constraints and factors helping in organizing a goat cooperative society. Major constraints hindering in the organization of a goat cooperative society were observed as wastage of time

(74.29%), frictions among the goat keepers (44.76%), and dependency on office bearers (40%), inadequate working facility (33.33%), and no benefit from goat cooperative society (27.62%).

The scarcity of grazing area was found to be most serious problem faced by shepherds. Infestation of grazing area by dominance of Prosopis Juliflora bushes was the second most serious problem. Non-availability of green fodder and lack of infra-structural facilities and marketing facilities for wool were other important problems reported by the farmers. Disease prevalence in different villages had different pattern. These problem areas require urgent attention of the planners and researchers in order to give a boost to the economy of the small ruminant sector (Dinesh Kumar, 2003).

Senthil Kumar and Meganathan (2005) in their study on marketing of sheep mutton observed that among various problems, sheep farmers ranked non-availability of required food as their major problem followed by poor credit facility and non remunerative price and lack of capital for their investment.

Singh *et al.,* (2006) studied the sheep and goat owner's constraints in Himachal Pradesh during 2001-02. The main problem was poor veterinary facility. They also reported that less price for live animal and wool, transportation problems, wild animal attack and higher morbidity rate (15-25%).

Thilakar and Krishnaraj (2007) conducted constraint analysis in sheep farming. Non availability of grazing land throughout the year (95.00 %), lack of veterinary aid at farmer's door step (87.5 %), high susceptibility of sheep to diseases (85.00 %) and

inadequate supply of drinking water (80 %) were the most serious managemental constraints. Lack of technical guidance (88.33%), lack of training (84.17%) and lack of knowledge (35.83%) in scientific practices were constraints expressed by the respondents. Non remunerative price (54.17%), distance to market (55.00 %), non existence of organized marketing (66.67 %) and middlemen as exploiters (60.83 %) were the marketing constraints of the respondents.

Sagar and Biswas (2008) identfied the constraints in Garole sheep of Sunderbans as lack of grazing facility (73.64%), mortality in early age due to disease (66.36%), lower sale price of Garole sheep (44.54%), lack of potent males for breeding (19.09%) and non availability of greens (18.18%). The suggestions as perceived by the farmers were availability of veterinary aid in time (74.55%), provision of better marketing facility (68.18%), availability of greens (50.91%), provision of financial assistance through credit organizations (30.00%) and availability of potent male for breeding (19.09%).

Wani *et al*., (2009) studied the constraints in rearing Changthangi goats in cold arid region of Jammu and Kashmir. Their study revealed, breeding as the main constraint (81.43%) followed by feeding (73.21%), animal health (71.54%), marketing (61.85%) and socio-economic (55.04%) constraints. The study also suggested prioritizing of research to address the constraints in rearing of Changthangi goats for economic security of the region through export earnings.

Thombre *et al.*, (2010) studied the adoption of goat rearing practices in Osmanabad district. Their study revealed, non-availability of veterinary services in the

village in time (80.55%) followed by costly veterinary services (76.38) inadequate and untimely loan supply (68.05%) were major problems faced by the goat keepers.

Anand Rao *et al.,* (2011) studied on migration of sheep flocks in north coastal region of Andhra Pradesh. They revealed that the migration mostly started in the mid-December and extended up to mid-July. The major reasons for migration were lack of feed resources (92.70%), income from penning (92.39%), traditional practice (87.50%), successive droughts (84.37%) and lack of water resources (83.33%). The major problems during migration included disease outbreaks (85.95%) and lack of veterinary facilities (83.81%).

Selvam (2011) conducted an analysis of small ruminant population in Tamil Nadu. The study revealed that the decrease in grazing land, diseases like PPR, blue tongue, inadequate market infrastructure, health care, problems in stall feeding and no breakthrough in genetics were the problems in the growth of small ruminants.

MATERIALS AND METHODS

CHAPTER III

MATERIALS AND METHODS

This chapter deals with the brief description of the study area and the techniques used in the selection of sample and processing of data under the following heads

3.1 Research design

3.2 Sampling procedure

3.3 Variables and their empirical measurement

3.4 Instruments and methods of data collection

3.5 Statistical tools employed for the study

3.1 RESEARCH DESIGN

An exploratory research design was adopted considering the objectives set forth for the study, type of variables considered, sample size and the phenomenon to be studied.

Exploratory research design was adopted to formulate a problem for more precise investigation and to develop working hypothesis from an operational point of view. The major emphasis was to discover the ideas and insights and this design was flexible enough to provide opportunity for considering different aspects of a problem under the study.

3.2 SAMPLING PROCEDURE

Information regarding the geographical location, demography, land use pattern and other features are highlighted. It provides background for analysis, interpretation and discussion of the results and helps in drawing meaningful conclusion.

3.2.1 Locale of the study

The study was conducted in the state of Karnataka as it was one among the important states in the country with highest livestock population. It was located within 11.5 degree North and 18.5 degree North latitudes and 74 degree East and 78.5 degree east longitude. It is situated on a tableland where the Western and Eastern Ghats ranges converge into the Nilgiri hill complex in the western part of the Deccan Peninsular region of India. Karnataka extends to about 750 km from north to south and about 400 km from east to west. Karnataka is situated in the Deccan Plateau and is bordered by the Arabian Sea to the west, Goa to the northwest, Maharashtra to the north, Andhra Pradesh to the east, Tamil Nadu to the east and southeast, and Kerala to the southwest. Karnataka was divided into 30 districts; the state is well connected by roads, railways, air and waterways.

3.2.2 Selection of districts

The different school of thoughts suggest that the native tract of Bannur sheep were both Bandur village of Malavalli taluk, Mandya district and Bannur village of T.Narasipur taluk, Mysore district, hence both the districts were purposively selected for the study.

3.2.2.1 Mandya district

Mandya district is located between north latitude 12°13' to 13°04' N and east longitude 76°19' to 77°20' E. It is bounded by Tumkur district to the northeast, Ramanagara district to the east, Chamrajnagar district to the south, Mysore district to the west and southwest, and Hassan district to the northwest. It has an area of 4,961 square kilo meters (1,915). Since Mandya is located on the banks of the river Cauvery, agriculture is the main occupation and is the single largest contributor to its economy. The main crops grown are Paddy, Sugarcane, Maize, Banana, Ragi, Coconut, Pulses (predominantly horse gram and to some extent Red gram, cowpea, green gram, black gram and Field Bean) and Vegetables.

3.2.2.2 Mysore district

Mysore district is located between latitude 11°45' to 12°40' N and longitude 75°57' to 77°15' E. It is bounded by Mandya district to the northeast, Chamrajanagar district to the southeast, Kerala state to the south, Kodagu district to the west, and Hassan district to the north. It has an area of 6,854 km² (ranked 12th in the state). The district lies on the undulating table land of the southern Deccan plateau, within the watershed of the Kaveri River, which flows through the northwestern and eastern parts of the district. The Krishna Raja Sagara reservoir, which was formed by building a dam across the Kaveri, lies on the northern edge of the district. Nagarhole National Park lies partly in Mysore district and partly in adjacent Kodagu District. The temperature in the district varies from 15º C in winters to 35º C in summers. Mysore district receives an average rainfall of 785 mm.

3.2.3 Selection of taluks

According to one version of elderly people in the breeding tract of Bannur sheep, Bandur village located in Malavalli taluk, Mandya district, is the place of origin of Bannur sheep. While other version is that, the breed is originated from Bannur village of T. Narasipur taluk of Mysore district. However, there are no authenticated written records available to know about places of historical development of this breed, Hence both Malavalli and T. Narasipur taluks were purposively selected for the present study.

3.2.3.1 Malavalli taluk

Malavalli town is located at 12°23′N 77°05′E12.38°N 77.08°E, 12.38; 77.08. It has an average elevation of 2001 feet. Malavalli town is a very vibrant and active rural market. It stretches for a whole length of three kilo meters. Somanathapura Hoysala temple, Muthathi forest and Bheemeshwari Cauveri fishing camp near Halagur town. According to 2001 India census Malavalli has 186 villages with a population of 35,800. Males constitute 51per cent of the population and females 49per cent. Malavalli has an average literacy rate of 64per cent, higher than the national average of 59.5per cent male literacy is 69per cent, and female literacy is 58per cent.

3.2.3.2 T. Narasipur taluk (Bannur village)

Bannur is a panchyath town in Mysore district in the state of Karnataka. Bannur is located 12°20′N 76°52′E12.33°N 76.86°E. It has an average elevation of 2145 feet. Bannur has a population of 23,190. Males constitute 51 per cent of the population and female’s 49 per cent. Bannur has an average literacy rate of 59 per cent, lower than the

national average of 59.5per cent; with 54 per cent of the males and 46 per cent of females literate. 11 per cent of the population is under 6 years of age.

3.2.4 Selection of respondents

In Malavalli and T. Narasipur taluk ten villages each were randomly selected. In each selected village ten farmers who are rearing Bannur sheep were randomly selected. In total, 200 Bannur sheep rearing farmers constituted as the sample for the study. The respondents were personally interviewed using pre-tested interview schedule.

3.3 VARIABLES AND THEIR EMPERICAL MEASUREMENTS

The present study was mainly aimed at collecting the opinion of the farmers regarding Bannur sheep rearing. The variables for the study have been selected based on the review of literature and in consultation with the experts in the field of veterinary extension. The variables selected and their empirical measurements followed were given in the table 1 and discussed in detail.

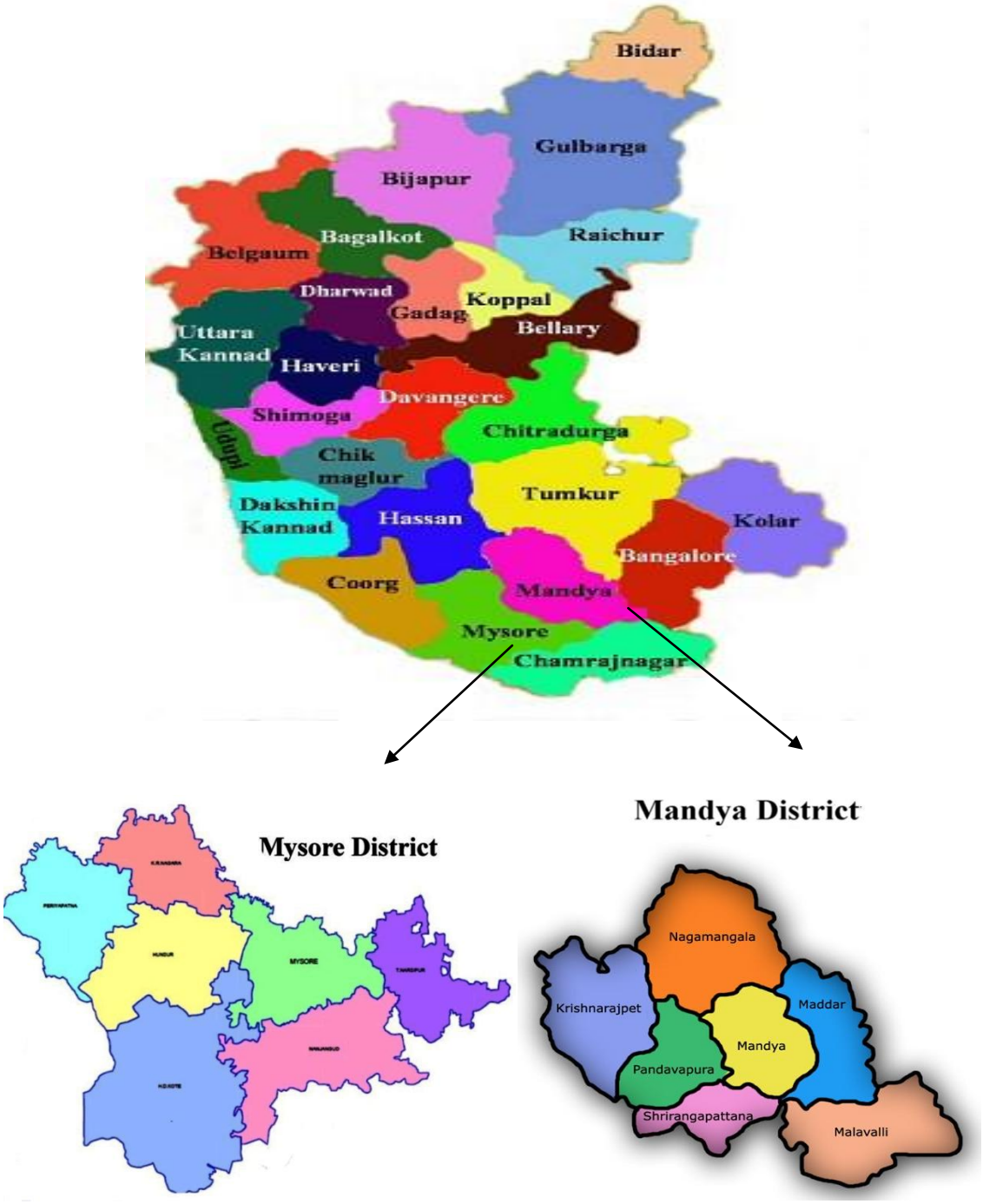

Fig 1: Map Showing Karnataka State with Mysore & Mandya Districts & their respective Taluks.

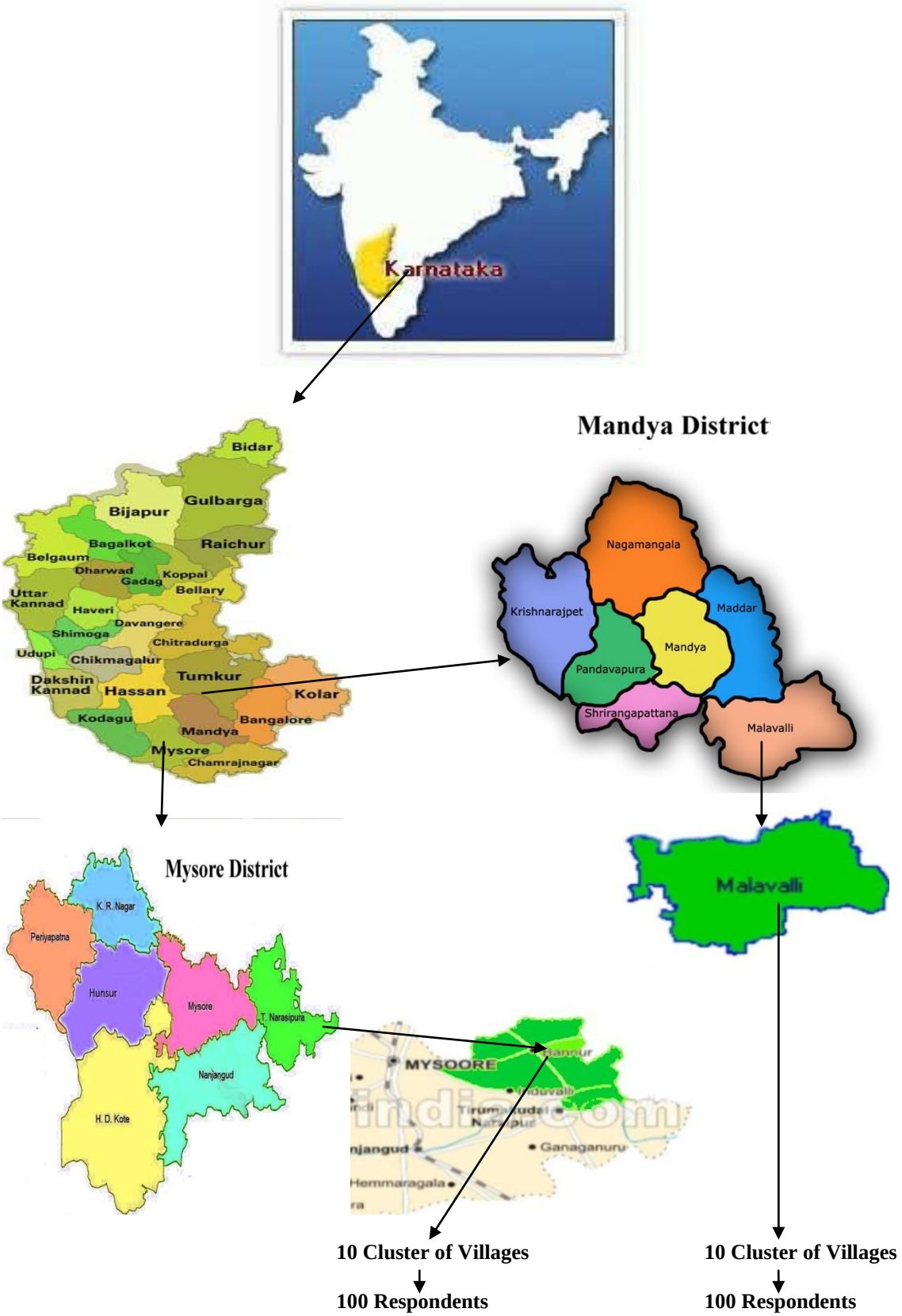

Fig 2: Sampling Procedure

Table: 1 Variables and empirical measurements adopted in the study

Sl. No	Variable	Empirical measurement
I	Socio economic and psychological Variables	
1	Age	Schedule was developed for the study
2	Education	Schedule was developed for the study
3	Caste	Schedule was developed for the study
4	Family size	Schedule was developed for the study
5	Occupation	Schedule was developed for the study
6	Land holding	Procedure was developed by Subhas Chandra (2002) with some modifications
7	Annual income	Schedule was developed for the study
8	Livestock possession	Schedule was developed for the study
9	Organizational participation	Schedule was developed for the study
10	Sheep farming centers visit	Schedule was developed for the study
11	Contact Extension personnel	Schedule was developed for the study
12	Extension participation	Schedule was developed for the study
13	Mass media participation	Schedule was developed for the study
14	Economic orientation	Schedule was developed for the study
15	Scientific orientation	Schedule was developed for the study
16	Opinion on Bannur sheep rearing	Schedule was developed for the study
II	Rearing practices	Schedule was developed for the study
III	Marketing practices	Schedule was developed for the study
IV	Constraints as foreseen by Bannur sheep farmers	Schedule was developed for the study

3.3.1 SOCIO-ECONOMIC AND PSYCOLOGICAL VARIABLES

3.3.1.1 Age

Age of the respondents was measured as the total number of completed years as on date of collecting the data from the respondents.

Age (years)	Category
20-35	Young
35-50	Middle age
50-65	Old age

The different age group of the respondents were categorised into young, middle and old age groups based on class interval (inclusive) method.

3.3.1.2 Education

The respondents were categorised into five categories as follows. The respondents belonged to each category were expressed in percentage.

Education	Category
Cannot read and write	Illiterate
1-4	Primary School
5-7	Middle School
8-10	High School
11-12	P.U.C

3.3.1.3 Caste

Caste was operationalised as the caste to which one belongs at the time of birth. Categorization of the variable was done as follows.

Sl. No.	Category
1	Vokkaligas
2	Kurubas
3	Schedule Caste
4	Schedule Tribe
5	General

The respondents belonging to each category were expressed in frequency and percentage.

3.3.1.4 Family size

The family size was operationally defined as the total number of members residing in the family. The total family size was calculated based on range, frequency and percentage.

3.3.1.5 Occupation

Occupation referred to primary family occupation or the main livelihood of the respondents. The respondents were asked to indicate their main occupation of the family and subsidiary occupation and the respondents were expressed in frequency and percentage. The categories are only Sheep Rearing and Agriculture with Sheep rearing.

3.3.1.6 Annual income

The annual income of the respondent's family was worked out by taking into account income from sheep rearing, agriculture and other sources during the previous year. The income gained through listed sources was summed up and the respondents were categorized based on the mean, range, frequency and percentage.

3.3.1.7 Land holding

The actual land holding of the respondent was recorded and this was converted into standard acres based on Karnataka Land Reforms act 38 of 1966. According to this act, one acre of garden or wet land was considered equivalent to 3 acres of dry land.

This classification was followed by Subhas Chandra (2002).

Category	Classification
No land	Landless labourers
< 1 hectare	Marginal farmers
1 to 2 hectare	Small farmers
2 to 3 hectare	Medium farmers
> 4 hectares	Large farmers

3.3.1.8 Fodder production

Fodder produced for their sheep feeding was recorded. Information was gathered on fodder grown by themselves or purchased and were expressed in frequency and percentage.

3.3.1.9 Possession of Bannur sheep

The respondents possessing breeding rams were expressed in terms of percentage. The flock size was categorized into three groups based on the class interval (inclusive) method and expressed in terms of frequency and percentage. Other than Bannur sheep were also taken and expressed in frequency and percentage.

3.3.1.10 Possession of other livestock

The possession of livestock includes cross bred cows, local cows, buffaloes and poultry. This was assessed by considering the various livestock reared by the sheep farmers.

3.3.1.11 Organizational Participation

It referred to the participation of respondents in local organizations like gram panchayat, taluk panchayat, zilla panchayat, primary milk producer's society, self help groups, youth clubs and school development committee.

The frequency, percentage was obtained based on the organizational participation of the respondent.

3.3.1.12 Visit to sheep farming centers

It referred to the respondents visit to the various sheep farming centers. The frequency and percentage was obtained based on their visit to various sheep farming centers.

3.3.1.13 Extension Contact

It referred to the extent of contact of the respondents with the extension agencies viz., veterinary officers, veterinary extension officers, veterinary livestock inspectors, extension guide, sheep board extension officers, Karnataka Milk Federation extension officers and officials of agriculture, horticulture and sericulture departments for their information in a specified period of time. The respondents were categorized based on the frequency and percentage.

3.3.1.14 Extension participation

It indicates the extent of participation of the respondents in different extension activities like training programs, demonstrations, livestock fairs, educational tours, exhibitions, animal health camps and general meetings. The respondents were categorized based on the frequency and percentage.

3.3.1.15 Mass media participation

It referred to the degree of exposure of the individual respondent to different mass media and the degree of participation in them. The different mass media listed were news papers, farm magazines, leaflets books, television and radio. The respondents were categorized based on the frequency and percentage.

3.3.1.16 Economic orientation

Economic orientation refers to the extent to which individual is oriented towards achievement of the maximum economic ends such as maximization of farm profits. The respondents were categorized based on the scores given as 1 for no and 2 for yes

responses. The respondents were grouped into three categories based on mean and standard deviation.

Sl. No	Item	Category
1	< Mean1/2 SD	Low
2	Mean± ½ SD	Medium
3	> Mean +½ SD	High

3.3.1.17 Scientific orientation

The respondents responses were given 1 for disagree, 2 for cannot say and 3 for agree. The respondents were grouped into three categories viz., low, medium and high based on mean and standard deviation

Sl. No	Item	Category
1	< Mean-1/2 SD	Low
2	Mean± ½ SD	Medium
3	> Mean + ½ SD	High

3.3.1.18 Opinion of sheep farmers on Bannur sheep rearing

The opinion of the sheep farmers were taken regarding the continuation of Bannur sheep farming, encouraging their children to take up sheep farming and interested to become members of sheep rearing association.

3.3.2 REARING PATTERN OF BANNUR SHEEP FARMERS

The Bannur sheep rearing practices were finalized in consultation with experts and technocrats in Bannur sheep rearing. The adoption of various rearing practices of

Bannur sheep farming by the sheep farmers were recorded and expressed in terms of percentage.

3.3.4 MARKETING PATTERN OF BANNUR SHEEP FARMERS

The various marketing practices adopted by the Bannur sheep farmers were recorded in terms of frequency and percentage. The economics of Bannur sheep rearing was calculated.

The expenditure includes rearing cost, labor cost and other expenditures. The income includes sale of sheep, sale of manure and others.

3.3.4 CONSTRAINTS AS EXPRESSED BY BANNUR SHEEP FARMERS

The constraints and suggestions were obtained from sheep farmers. The data so obtained was expressed in percentage and the rankings were given based on the priority given by the respondents at the time of collection of data.

3.4 INSRUMENTS AND METHODS USED FOR DATA COLLECTION

3.4.1 Construction of interview schedule

The interview schedule for the farmers rearing Bannur sheep was developed in consultation with the experts in the field of animal husbandry extension. In the light of suggestions given by experts, suitable modifications were made in the interview schedule before administering in the main sample area.

The final interview schedule is provided in Appendix. The final interview schedule comprised of four parts. First part dealt with socio-economic and psychological

characteristics of Bannur sheep farmers. Second part covered various aspects of rearing pattern of Bannur sheep. Third part dealt with marketing and final part covered the constraints expressed by the Bannur sheep farmers.

3.4.2 Establishing rapport with the respondents

Rapport with the respondents was very essential and also played an important role in eliciting accurate responses from the respondents throughout the investigation. Keeping this in view prior to the collection of data, the investigator contacted the main resource persons of various organizations, collected the information regarding the Bannur sheep rearing farmers. After acquaintance with the farmers, the data was collected by personally interviewing the individual farmers. Investigation with the farmers was done by making informal and friendly visits to their homes in the early hours of the day. This helped in getting desired cooperation, valid and reliable information from the Bannur sheep rearing farmers.

3.4.3 Methods of data collection

Interview schedule was prepared in English and translated to Kannada. The Bannur sheep farmers were personally interviewed to collect the data. It was made sure that all questions were self explanatory and each of the farmers was interviewed in their vernacular language personally by the investigator.

3.5 STATSTICAL TOOLS EMPLOYED FOR THE ANALYSIS

For the purpose of statistical analysis of collected data the following statistical tools were selected.

3.5.1 Frequency and Percentage

The data were subjected to frequency and percentage which is used to know the distribution of respondents according to selected variable.

3.5.2 Ranking

Ranks were given based on priorities given by the respondents towards items of the questions. The mean and standard deviation were calculated for the data for the required sources.

Fig. 3: Providing green fodder during night hours to Bannur sheep

Fig. 4: Marking with colors by the Bannur sheep farmers for identification of the flock

Fig. 5: Processing of dry fodder for feeding

Fig.6: Storage of horse gram husk to feed the sheep during non grazing hours

Fig. 7: Shearing of sheep

Fig.8: Housing of Bannur sheep

Fig. 9: Housing of sheep

Fig. 10: Breeding ram

Fig. 11: Tethering of breeding rams separately from ewes

Fig. 12: Grazing of sheep in the waste lands

Fig. 13: Returning to the shed after grazing

Fig. 14: Flock of Bannur sheep

RESULTS

CHAPTER- IV

RESULTS

In consistence with the objectives set forth for the study, the data were collected, tabulated and analyzed. The results so obtained are presented as under the following sub-headings:

1. To study the personal, socio-economic and psychological characteristics of Bannur sheep farmers.
2. To explore the rearing pattern of the Bannur sheep farmers
3. To study the marketing pattern of the Bannur sheep farmers
4. To identify the possible constraints as foreseen by the farmers in Bannur sheep husbandry

4.1 THE PERSONAL, SOCIO-ECONOMIC AND PSYCHOLOGICAL CHARACTERISTICS OF BANNUR SHEEP FARMERS

The information on general characteristics of Bannur sheep farmers like age, education, family size, occupation, land holdings, annual income, fodder production were presented in tables.

4.1.1 Age

Table 2 and fig. 15 reveals that 35.50 per cent of the Bannur sheep farmers belonged to the middle age group, followed by old age group (34 %) and young age group (30.50 %).

4.1.2 Education

With regard to the education of the respondents, Table 2 and Fig.15 reveals that the 84.50 per cent of the respondents were illiterates, while 9.50 per cent and 6 per cent of the respondents had education up to primary and middle school respectively. None of the respondents had high school and PUC education.

4.1.3 Caste

The data in Table 2 and Fig.15 reveals that 48 per cent of the respondents belonged to Vokkaligas community, 32 per cent belonged to Kurubas, 9,7 and 4 per cent belonged to Schedule Caste, Schedule Tribes and general community, respectively.

4.1.4 Family size

The data in Table 2 and Fig.15 indicate are 53 percent of the respondents belonged to medium family size followed by small family size (34 %) and large family size (13%).

4.1.5 Main occupation

The data furnished in the Table 3, indicate are the majority (51.50%) of the respondents had agriculture with sheep farming as their major occupation, while 48.50 per cent had only sheep farming as their main occupation (Fig 16).

4.1.6 Annual Income

The data from Table 3 and Fig. 18, indicate are the 48.50 per cent of the respondents had an annual income of below Rs.13.100, 32 per cent of the respondents

TABLE – 2

Classification of Respondents based on Age, Educational and Family size

(N=200)

Characteristics	**Category**	**Respondents**		
		F	**%**	
Age group (years)	Young	61	30.50	Mean=50.42
	Medium	71	35.50	
	Old	68	34.00	
Educational level	Illiterate	169	84.50	
	Primary	19	9.50	
	Middle	12	6.00	
Family size	Small	68	34.00	Mean=4.98
	Medium	106	53.00	
	Large	26	13.00	
Caste	Vokkaligas	96	48.00	
	Kurubas	64	32.00	
	SC	18	9.00	
	ST	14	7.00	
	General	8	4.00	

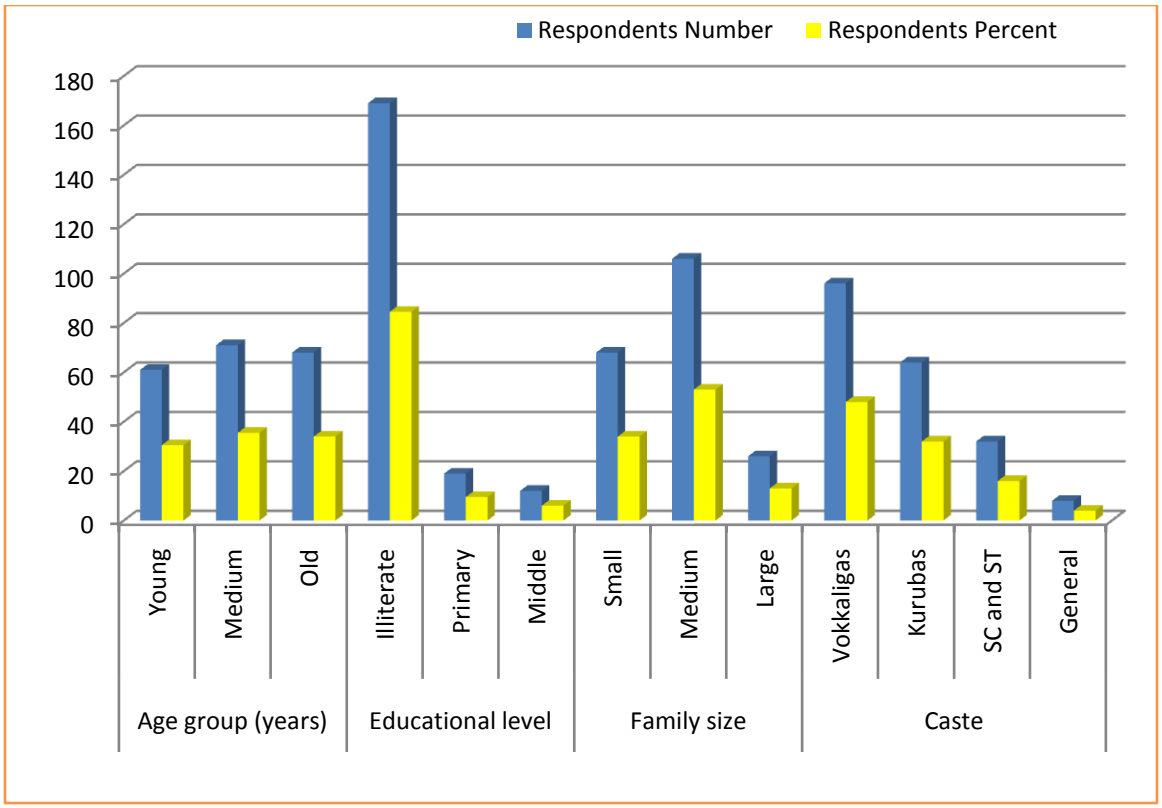

Fig. 15: Classification of Respondents based on Age, Educational and Family size

TABLE – 3

Classification of Respondents based on Occupation, Land holding, Income and Fodder Production

(N=200)

Characteristics	Category	Respondents		
		F	%	
Main Occupation	Sheep Rearing	97	48.50	
	Agriculture & Sheep Rearing	103	51.50	
Land holdings	Landless	23	11.50	Mean=1.19
	Marginal	117	58.50	
	Small	60	30.00	
Annual Income	Below Rs.13,100	97	48.50	Mean=17,820
	Rs.13,100-22,520	64	32.00	
	Above Rs.22,520	39	19.50	
Fodder Production	Grown	118	59.00	
	Not grown	82	41.00	

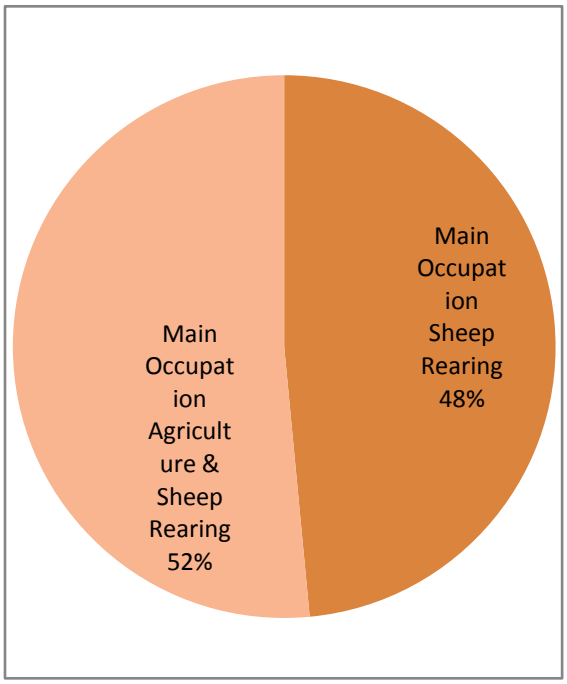

Fig. 16: Main occupation

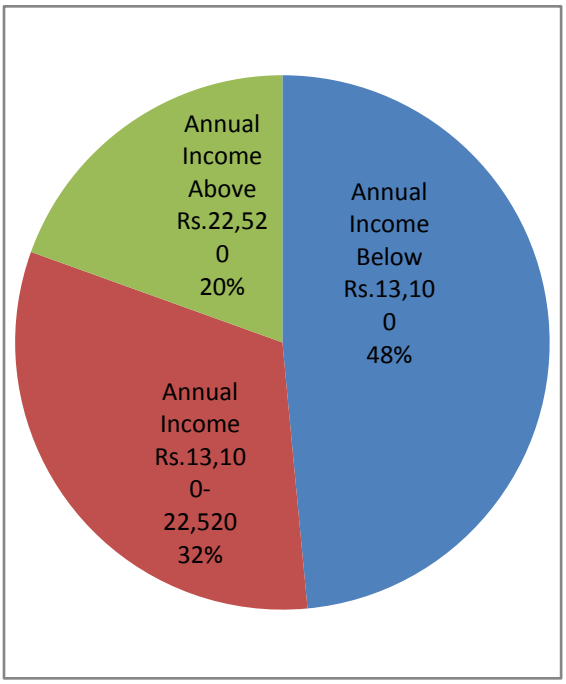

Fig. 17: Annual Income

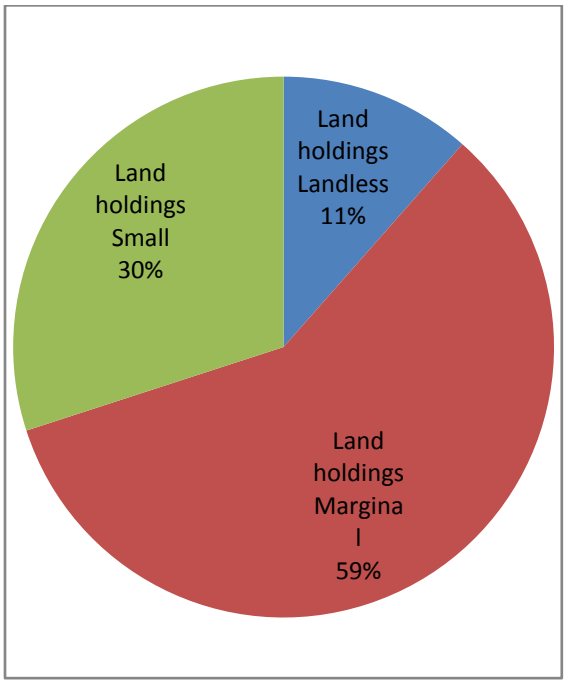

Fig 18: Land Holdings

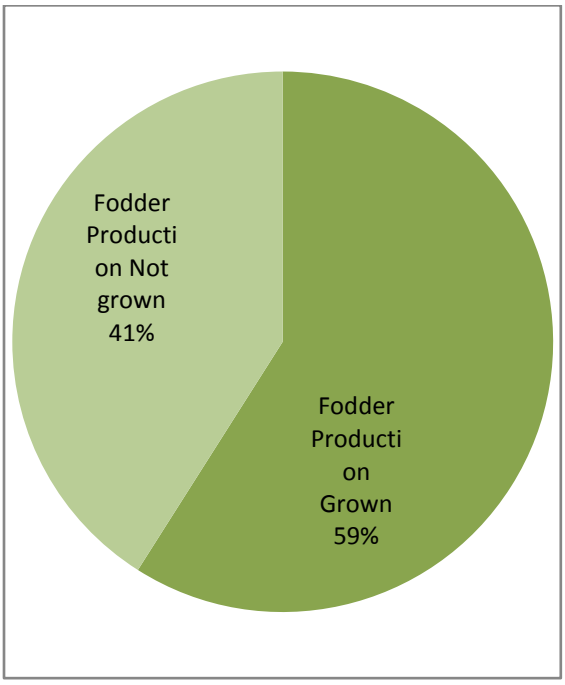

Fig. 19: Fodder Production

Classification of Respondents based on Occupation, Land holding, Income and Fodder Production

had an income between Rs.13,100 to Rs.22, 520 and 19.50 per cent of the respondents had annual income above Rs.22, 520.

4.1.7 Land holding

With regard to the land holding (Fig. 18) of the respondents, majority (58.50%) of the respondents were marginal farmers, 30.0 per cent of the farmers were small farmers followed by landless farmers (11.50 %).

4.1.8 Fodder production

Majority (59 %) of the respondents grows the fodder for their sheep, while others (41%) do not grow any fodder (Table 3 and Fig. 19).

4.1.9 Possession of Bannur sheep

A perusal of Table 4, reveals that majority (95 %) of the respondents possessed only one breeding ram while the remaining 5 percent had two rams.

Majority (62%) of the respondents had a flock size ranging from 11-20, followed by 31 per cent of the respondents with a flock size of 21 to 30 and 7 per cent respondents with a flock size of 5-10.

Majority of the respondents who were maintaining Bannur sheep do not mix either males (99.00%) or females (95.50%) and only 1 per cent and 4.5 per cent of the respondents mix with other breeds (Fig. 20).

TABLE – 4

Classification of Respondents based on Possession of Bannur Sheep

(N=200)

Characteristics	Category	Respondents	
		F	%
Bannur sheep (Male)	One	190	95.00
	Two	10	5.00
Bannur sheep (Female)	5-10	14	7.00
	11-20	124	62.00
	21-30	62	31.00
Other Sheep breeds (Male)	No	198	99.00
	One	2	1.00
Other Sheep breeds (Female)	No	191	95.50
	One	9	4.50

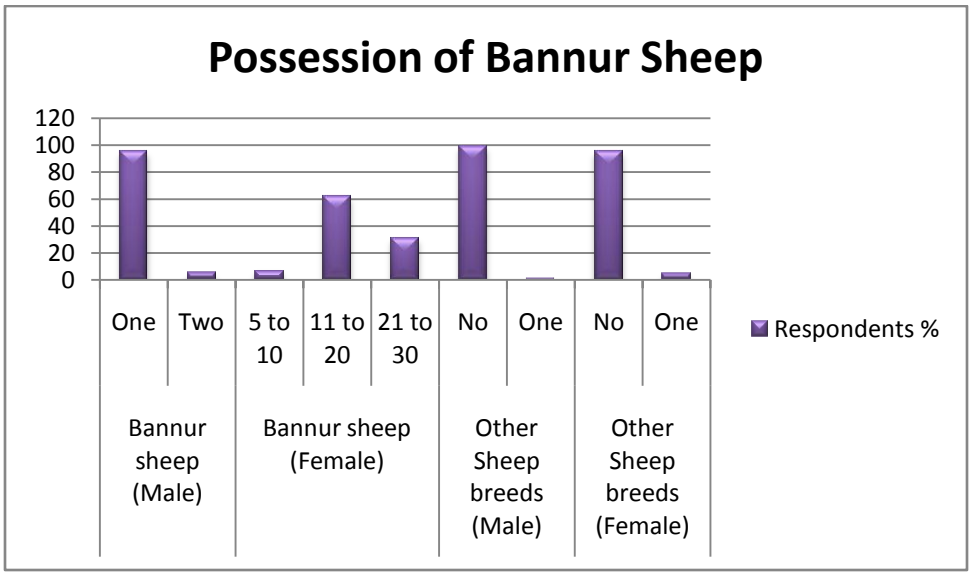

Fig. 20: Classification of Respondents based on Possession of Bannur Sheep

4.1.10 Possession of other Livestock

Results presented in Table 5, reveals that the majority (49 %) of respondents were rearing two cross bred cows, while 22 per cent were rearing only one cross bred cow and 29 per cent do not rear any cross bred cows.

Majority (55.50%) of the respondents possessed two local cows for both milk and draught purpose, 7.50 per cent had single local cow while the other 37 per cent did not possess any local cow.

With regard to buffaloes, 43 per cent of the respondents possess more than 3 buffalos and 38 per cent possess 1 or 2 and 19 per cent of the respondents did not possess any buffaloes.

Majority (67 %) of the respondents possessed backyard poultry and 33 per cent do not possess backyard poultry.

4.1.11 Organizational participation

A bird's eye view of the Table 6 and Fig 21, reveals that among Bannur sheep rearing farmers, 81 per cent of the respondents were occasionally participated, while 18 per cent never participate and 1 per cent were participated regularly in gram panchayat,

Majority (73.50%) of the Bannur sheep farmers never participates, while 26.50 per cent occasionally participate and none of them were regularly participated in taluk panchayat

TABLE – 5

Classification of Respondents based on Possession of Other Livestock

(N=200)

Characteristics	Category	Respondents	
		F	%
Cross breed Cows	Not reared	58	29.00
	Reared One	44	22.00
	Reared Two	98	49.00
Local Cows	Not reared	74	37.00
	One	15	7.50
	Two	111	55.50
Buffaloes	Not reared	38	19.00
	Reared 1 or 2	76	38.00
	Reared more than Three	86	43.00
Back yard poultry	Not reared	134	67.00
	Reared	66	33.00

TABLE – 6

Classification of Respondents based on Organizational Participation

(N=200)

No.	Category	Respondents Participation					
		Regular		Occasional		Never	
		F	%	F	%	F	%
1	Gram Panchayat	2	1.00	162	81.00	36	18.00
2	Taluk Panchayat	0	0.00	53	26.50	147	73.50
3	Zilla Panchayat	0	0.00	2	1.00	198	99.00
4	Primary Milk producers Society	4	2.00	174	87.00	22	11.00
5	Sheep & Wool producers Society	0	0.00	6	3.00	194	97.00
6	Self help Groups	1	0.50	123	61.50	76	38.00
7	Youth clubs / Mahila Mandal	0	0.00	5	2.50	195	97.50
8	School development Committee	0	0.00	1	0.50	199	99.50

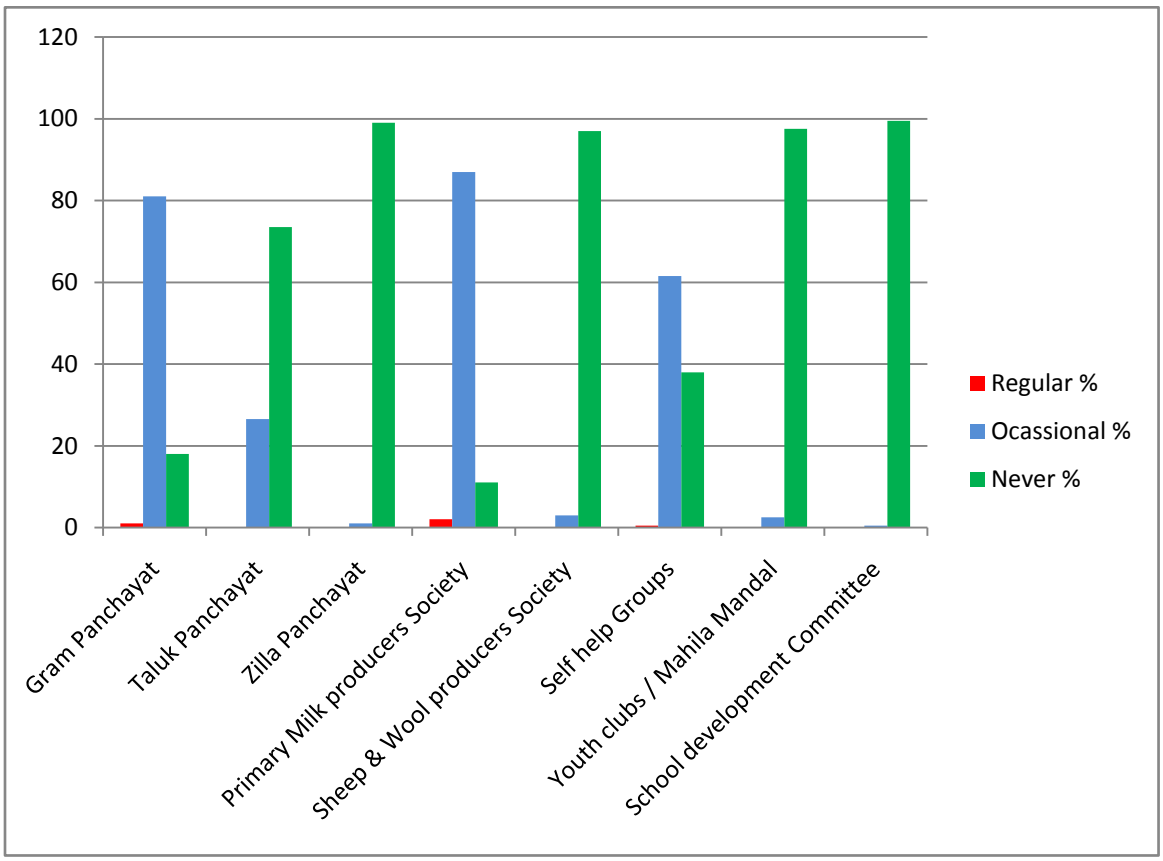

Fig. 21: Classification of respondents based on Organizational Participation

Majority (99.00%) of the Bannur sheep farmers never participate in zilla panchayat, while 1 per cent occasionally participates and none of them were regularly participated in zilla panchayat.

Only 2 per cent regularly participated in the activities of primary milk producers society, while 11 per cent never participate and majority (87.00%) of the Bannur sheep farmers occasionally participate in the activities of primary milk producers society.

Majority (97.00%) of the Bannur sheep farmers never participate, while 3 per cent occasionally participate and none of them regularly participated in sheep and wool producers society.

Majority (61.50%) of the Bannur sheep farmers occasionally participate in self help groups, while 38 per cent never participates and only 0.50 percent was participated in self help groups.

Majority (97.50%) of the Bannur sheep farmers never participate in youth club/ mahila mandal, while 2.5 per cent occasionally participate and none of them regularly participated in youth club/ mahila mandal.

Majority (99.50%) of the Bannur sheep farmers never participate in school development committee, while 0.5 per cent occasionally participates and none of them regularly participated in school development committee.

4.1.12 Visit to sheep farming centers

A perusal of Table 7, reveals that majority (51 %) of the respondents did not visit any of the sheep farms, however 25 per cent of the respondents visited Dhanagur sheep breeding farm, 21 per cent visited Nagamangala sheep farm, 2.50 per cent visited veterinary department and 0.50 per cent visited nearby private farms for seeking practical and technical advice.

4.1.13 Extension Contact

A bird's eye view of the Table 8, indicate that majority (80.5%) of the Bannur sheep rearing farmers were having occasional contact while 19.50 per cent were having regular contact and none of them had never contact with veterinary officers. Majority (84%) of the Bannur sheep rearing farmers never contacted, while 16.00 per cent were having occasional contact and none of them had regular contact with veterinary extension officers. Majority (99%) of the respondents were having occasional contact, while 1 per cent never had contact and none of them had regular contact with veterinary livestock inspectors. None of the respondents were having contact with extension guide regularly, occasionally and never. Majority (99%) of the respondents never had a contact while only 1 per cent was having occasional and none of the respondents were having contact with sheep board extension officers regularly. Majority (97%) of the respondents were never had contact, while 13 per cent had occasional contact and none of the respondents had regular contact with KMF officials. Majority (84.50%) of respondents were having occasional contact, while 15.00 per cent never had a contact and 0.50 per cent were having regular contact with agriculture department officials, Majority (90.50%) of the

TABLE – 7

Classification of Respondents based on visit of Sheep farming centers

(N=200)

No.	Category	Respondents	
		F	%
1.	Not visited any Sheep farming Centers	102	51.00
2.	Dhangur sheep farm	50	25.00
3.	Nagamangala sheep farm	42	21.00
4.	Veterinary department farm	5	2.50
5.	Others	1	0.50

TABLE – 8

Classification of Respondents based on Extension Contact

(N=200)

No.	Category	Respondents Participation					
		Regularly		Occasional		Never	
		F	%	F	%	F	%
1	Veterinary Officer	39	19.50	161	80.50	0	0
2	Veterinary extension Officer	0	0	32	16.00	168	84.00
3	Veterinary Live stock Inspector	0	0	198	99.00	2	1.00
4	Extension Guide	0	0	0	0	200	100.00
5	Sheep board Extension Officer	0	0	2	1.00	198	99.00
6	Karnataka Milk Producers Federation Extension Officer	0	0	26	13.00	174	97.00
7	Agriculture Department Officials	1	0.50	169	84.50	30	15.00
8	Horticulture Department Officials	1	0.50	18	9.00	181	90.50
9	Sericulture Department Officials	1	0.50	40	20.00	159	79.00

respondents were never had contact, while 9 per cent had occasional contact and 0.50 per cent were having regular contact with horticulture department officials. Majority (79.00%) of the respondents never had a contact while 20 per cent were having occasional contact and only 0.50 per cent of the respondents were having regular contact with sericulture department officials.

4.1.14 Extension Participation

A perusal of the Table 9, indicated that the majority (98.00%) of the Bannur sheep rearing farmers never participated in the training programs, while 2 per cent were occasionally participating and none of them regularly participated in the training programs.

Majority (99.00%) of the Bannur sheep rearing farmers never participated in demonstration, while 1 per cent was occasionally participated and none of them regularly participated in demonstration.

Majority (66.00%) of the Bannur sheep rearing farmers occasionally participated in livestock fair, while 34 per cent was never participated and none of them regularly participated in livestock fair.

Majority (89.50%) of the Bannur sheep rearing farmers never participated in education tour, while 10.50 per cent were occasionally participated and none of them regularly participated in education tour.

TABLE – 9

Classification of Respondents based on Extension Participation

(N=200)

No.	Category	Respondents Participation					
		Regularly		Occasional		Never	
		F	%	F	%	F	%
1	Training Programme	0	0	4	2.00	196	98.00
2	Demonstration	0	0	2	1.00	198	99.00
3	Livestock Fair	0	0	132	66.00	68	34.00
4	Educational Tour	0	0	21	10.50	179	89.50
5	Exhibition	1	0.50	33	16.50	166	83.00
6	Animal Health Camps	37	18.50	163	81.50	0	0
7	General Meetings	0	0	21	10.50	179	89.50

Majority (83.00%) of the Bannur sheep rearing farmers never participated in exhibition, while 16.50 per cent were occasionally participated and 0.50 per cent regularly participated in exhibition.

Majority (81.50%) of the Bannur sheep rearing farmers occasionally participated in animal health camps, while 18.50 per cent were regularly participated and none of them never participated in animal health camps.

Majority (89050%) of the Bannur sheep rearing farmers never participated in general meetings, while 10.50 per cent were occasionally participated and none of them regularly participated in general meetings.

4.1.15 Mass media Participation

It is interesting to note from the Table 10, that as high as 86.50 per cent of the Bannur sheep rearing farmers never read news papers, while 12.50 per cent were occasional and only 1 per cent were regular news paper readers.

Majority (95.50%) of the Bannur sheep rearing farmers never read farm magazines, while 4.50 per cent were occasional and none of them were regular farm magazine readers.

Majority (89.50%) of the Bannur sheep rearing farmers never read leaflets, while 10.50 per cent were occasional and none of them were regular leaflet readers.

Majority (89.00%) of the Bannur sheep rearing farmers were occasional, while 11.00 per cent never watch and none of them regularly watch television.

TABLE – 10

Classification of Respondents based on Mass media participation

(N=200)

No.	Category	Respondents Participation					
		Regularly		Occasional		Never	
		F	%	F	%	F	%
1	News paper	2	1.00	25	12.50	173	86.50
2	Farm Magazines	0	0	9	4.50	191	95.50
3	Leaflets	0	0	21	10.50	179	89.50
4	Television	0	0	178	89.00	22	11.00
5	Radio	1	0.50	197	98.50	2	1.00
6	Books	0	0	6	3.00	194	97.00

Majority (98.50%) of the Bannur sheep rearing farmers was occasional, while 0.50 per cent regularly and only 1 per cent of them never listening to radio.

Majority (97.00%) of the Bannur sheep rearing farmers never read books, while 3 per cent were occasional and none of them were regular book readers.

4.1.16 Economic Orientation

A perusal of Table 11, indicate the majority (51 %) of the respondents had high, while, 33 and 16 percent had medium and low economic orientation respectively.

4.1.17 Scientific Orientation

A result presented in Table 12, reveals that 45 per cent of the respondents had low scientific orientation, while, 41.50 per cent and 14 per cent had medium and high scientific orientation respectively.

4.1.18 Opinion of sheep farmers on sheep rearing

A perusal of Table 13, reveals that all the 200 respondents were interested in continuing the sheep farming.

With regards to opinion of respondents on their children taking up of various occupation, majority (82%) of the respondents were for continuation in sheep farming, while 5.50, 5.50, 6 and 1per cent would encourage their children for agriculture, government job, private job and to take up business respectively.

TABLE – 11

Classification of Respondents based on Economic Orientation

(N=200)

Sl. No	Category	F	%
1	Low	32	16.00
2	Medium	66	33.00
3	High	102	51.00
	Total	**200**	**100**

Mean=6.96 **SD=0.232**

TABLE – 12

Classification of respondents based on Scientific Orientation

(N=200)

Sl. No	Category	F	%
1	Low	90	45.00
2	Medium	82	41.50
3	High	28	14.00
	Total	**200**	**100**

Mean=5.73 **SD=0.216**

TABLE –13

Opinion of sheep farmers based on Bannur sheep rearing

(N=200)

No.	Category	Response	Respondents	
			F	%
1	Interested in continuing with sheep rearing	Yes	200	100.00
2	Encourage children to take up sheep farming	Yes	164	82.00
3	Encourage children to take up other profession	Agriculture	11	5.50
		Government job	11	5.50
		Private job	12	6.00
		Business	2	1.00

4.2 REARING PATTERN OF THE BANNUR SHEEP FARMERS

A perusal of Table 14, reveals that all the farmers clean their sheep sheds regularly but no one apply any ecto-parasite solution while cleaning sheep sheds. Further 50 per cent of the farmers wash their sheep between 1-2 months, while 29.50 per cent wash once in a month and 20.50 per cent between 3-4 months and all the farmers shear their flocks twice in a year (January and July).

A perusal of Table 15, reveals that that the majority of the farmers identify their flock by marking with colors. Majority (95.50%) of the farmers posses closed type of housing, usually house with mud walls and roof made up of cheaply available materials. The majority (97.50%) of these houses were having less ventilation and mud flooring. All the farmers don't take any other extra managemental practices during summer season except taking flock for grazing during early and late hours of the day for grazing. Majority (64%) of the farmers depends on rivers as a source of drinking water for their flocks, 16 per cent depends on Canal water and others (20%) depend on bore well and other sources. Further 50.50 per cent of the farmers graze their flocks for 6 to 7 hours a day, while 49.50 per cent of the farmers graze their flocks for 7-8 hours a day and majority (80.50%) of the respondents revealed that the sheep were given dried horse gram and horse gram husk after returning from grazing while 19.50 per cent of the farmers provide leaves from fodder trees.

The data regarding the management of breeding rams were presented in Table 16. The findings revealed that majority (89%) of the farmers allowed the rams for the first service at the age of 12-14 months. Only 11 per cent of the farmers allowed the rams as

TABLE – 14

Sheep rearing practices by the Bannur sheep rearing farmers

(N=200)

No.	Category	Response	Respondents	
			F	%
1	Daily cleaning of sheep shed	Yes	200	100.00
2	Spraying ecto-parasitic solution while cleaning sheep shed	Yes	0	0
3	Frequency of washing sheep	1 month	59	29.50
		1-2 months	100	50.00
		3-4 months	41	20.50
4	Frequency of sheep shearing in a year	Jan//July	200	100

TABLE – 15

Respondents Response on Rearing practices

(N=200)

No.	Category	Response	Respondents	
			F	%
1	Flock Identification	Ear tags	0	0
		Marking with colors	200	100
2	Housing	Open type	9	4.50
		Closing type	191	95.50
3	Floor surface	Rough	5	2.50
		Mud floor	195	97.50
4	Management practices during summer	Yes	0	0
		No	200	100
5	Water management	Canal water	32	16.00
		River water	128	64.00
		Bore well and Other Sources	40	20.00
6	Grazing hours per day	6-7 hours	101	50.50
		7-8 hours	99	49.50
7	Type of fodder given at shed	Horse gram	161	80.50
		Fodder trees	39	19.50

@ Multiple Response

TABLE – 16

Respondents Responses on Breeding Rams

(N=200)

No.	Category	Response	Respondents	
			F	%
1	Age at first service of Ram lambs	10-12 months	22	11.00
		12-14 months	178	89.00
2	Change breeding Rams	Yes	129	64.50
3	If Yes, Frequency of Change of Rams	< 2 years	76	38.00
		2-4 years	53	26.50
4	Common abnormalities of Rams	Less vigor & Cryptorchidism	200	100

early as 10-12 months. Majority of the farmers (64.5%) change their breeding rams regularly whereas others (35.50%) do not. Out of 64.50 per cent respondents who change their breeding ram, 38 per cent of the farmers change within 2 years and 26.50 per cent of the farmers change between 2 to 4 years. Less vigor and cryptorchidism in the breeding rams were the common abnormalities observed by all the respondents.

The observations recorded regarding the management of breeding lambs were tabulated in Table 17. Regarding the age at puberty of lambs, 50 per cent of the farmers opined as 11 to 12 months, 40.50 per cent of the farmers opined 8 to 10 months and other 9.5 per cent opined 13 to 15 months. Further 59.50 per cent of the farmers allowed the lambs for first mating at the age of 11 to 12 months, 27 per cent of the farmers allowed as early as 8 to 10 months and the remaining 13.50 per cent at the age of 13 to 15 months. Majority (54.50%) of the farmers opined that the age at the first lambing will be as early as 13 to 15 months and the other 45.50 per cent of the farmers opined of 11 to 12 months. Majority (92.50%) of the farmers opined days open as 2 to 3 months and 7.50 per cent of farmers opined 4 to 6 months. Majority (99%) of the farmers observed the gestation period as 5 months and only 1 per cent opined as more than 5 months. Majority (97.50%) of the farmers indicated that only one offspring was produced in each lambing. The common abnormalities found during parturition were abortion and retention of placenta followed still birth and early lamb mortality.

A perusal of Table 18, indicates that the common diseases prevalent were Blue Tongue, P.P.R, Enterotoxaemia and Endoparasites. Majority of the farmers administer the medicines either by drenching or through drinking water and all the farmers take the

TABLE – 17

Rearing Practices in lambs

(N=200)

No.	Lambs	Response	Respondents	
			F	%
1	Age at Puberty	8-10 months	81	40.50
		11-12 months	100	50.00
		13-15 months	19	9.50
2	Age at first mating	8-10 months	54	27.00
		11-12 months	129	59.50
		13-15 months	27	13.50
3	Age at first lambing	11-12 months	91	45.50
		13-15 months	109	54.50
4	Days Open	2-3 months	185	92.50
		4-6 months	15	7.50
5	Gestation period	5 months	198	99.00
		6 months	2	1.00
6	Number of Offspring's in each Lambing	1 0r 2	5	2.50
		One	195	97.50
7	Common Abnormalities	Abortion	200	100.00
		Retention of Placenta	199	99.50
		Still Birth	192	96.00
		Early lamb mortality	192	96.00

advice either from veterinarian or through veterinary livestock inspectors. Majority of the farmers adopt the regular vaccinations, the common vaccinations taken up were against Foot and Mouth disease, Blue tongue, PPR and E. T.

The various ITK's adopted by the respondents were also presented in the table 18. As high as 96 per cent of the shepherds feed neem leaves once in fortnight for disease prevention, 64 per cent of the Bannur sheep rearing farmers use extract of thumbe leaves for skin allergy, 52 per cent of the Bannur sheep rearing farmers use ginger, pepper powder, bhaje juice for indigestion, 43 per cent of the Bannur sheep rearing farmers use powdered beetle nut and jaggery for bloat, 38.50 per cent of the Bannur sheep rearing farmers use egg of local hen with shell for excess salivation and cough, 36 per cent of the Bannur sheep rearing farmers use touch me not leaves (*Mymosa pudica*) with areca paste for dysentery, 31.50 per cent of the Bannur sheep rearing farmers use turmeric, vanaspathi for udder swelling, 30.50 per cent of the Bannur sheep rearing farmers use mixture of coconut and jaggery for anorexia, 28.50 per cent of the Bannur sheep rearing farmers use extract of neem leaves for ring worm and 28 per cent of the Bannur sheep rearing farmers use egg of local hen with asafoetida for FMD.

4.3 MARKETING PATTERN OF BANNUR SHEEP FARMERS

A perusal of Table 19, indicates that, majority (63 %) of the Bannur sheep farmers separated the selling sheep by age and 37 per cent by numbers. Majority (55%) of the respondents sold the sheep directly, while 45 per cent of the respondents sold through middlemen. Majority (92 %) of the respondents opined that middlemen were not helpful in marketing and controlling the middlemen and direct marketing would help the sheep

TABLE – 18

Opinion of Sheep Farmers on Common diseases, ITKs, Vaccinations

(N=200)

No.	Particulars	Category	Respondents	
			F	%
1	**Common diseases in Sheep** @ multiple response	Bluetounge	200	100.00
		PPR	200	100.00
		Enterotoxaemia	200	100.00
		Endoparasites	200	100.00
2	**Common ITK's practiced by sheep farmers** @ multiple response	Neem leaves once in fortnight for disease prevention.	192	96.00
		Ginger, pepper powder, Bhaje juice for indigestion.	104	52.00
		Powdered beetle nut and Jaggery for bloat.	86	43.00
		Egg of local hen with shell for excess salivation and cough.	77	38.5
		Touch me not leaves with areca paste for dyscentry.	72	36.00
		Turmeric, Vanaspathi for udder swelling.	63	31.50
		Hens egg with Hingu for FMD.	56	28.00
		Mixture of coconut and Jaggery for anorexia.	61	30.50
		Extract of Thumbe Leaves for skin allergy.	128	64.00
		Extract of Neem leaves for ring worm.	57	28.50
3	**Method of administration of Medicines**	Drenching	97	48.5
		Drenching/ through drinking water	103	51.5
4	**Advice to administer Medicine** @ multiple response	Veterinarian	200	100.0
		Veterinary livestock inspector	200	100.0
5	**Common vaccinations adopted regularly** @ multiple response	Foot and mouth disease	77	38.5
		Blue tongue	198	99.0
		P.P.R	198	99.0
		Enterotoxaemia	198	99.0

TABLE-19

Marketing methods of Bannur sheep farmers

Sl. No	Category		F	%
1	Separation of selling sheep	By Numbers	74	37.00
		By age	126	63.00
2	Sell the sheep directly	Yes	110	55.00
3	Sell the sheep through middlemen	Yes	90	45.00
4	Middlemen are helpful in marketing	Yes	16	8.00
5	If not, what should be done a. Control of middlemen b. Direct marketing		 164 20	 82.00 10
6	Marketing channels	a. Through middlemen b. Shandy **c.** A.P.M.C	91 94 15	45.00 47.00 8.00

farmers. The common marketing channels available were through middlemen, shandy and APMC market.

The results presented in the Table 20, reveals that 82 per cent of the Bannur sheep farmers opined of getting actual price and getting more profit in direct marketing (86 %), while 79 per cent of the respondents had assured selling in shandy, 72 per cent had whole flock selling in shandy and 71 per cent of the respondents had assured selling in APMC and 68 per cent in whole flock selling in APMC market.

The results presented in the Table 20, indicates that, 82 per cent of the respondents are having opinion of direct marketing takes a longer duration, 87 per cent of the respondents are having opinion of interference of middlemen in shandy, 82 per cent of the respondents are having opinion of transportation risk in shandy and majority 82 and 71 per cent of the respondents are having opinion of having transportation risk and APMC fees in marketing sheep in APMC.

The perusal of Table 21, that majority of the respondents (98.50%) indicated that the actual weight basis method is the best method in fixing the price, followed by outlook (49.50%) and lumbar score (13.50%). Majority (94.50%) of the respondents indicated that actual weight basis method is the most ideal method of marketing, followed by outlook (21.00%) and lumbar score (7.50%). Majority of the respondents (95.50%) were not satisfied with the present marketing system. Regarding the alternatives in the marketing system, majority of the respondents (92 %) indicated the direct sale from the producer, new regulations in the A.P.M.C market (22.00%) and separate sheep market (33.00%) would be the other alternatives.

TABLE – 20

Opinion of Sheep farmers on different Marketing Channels

(N=200)

Category	Advantages	F	%
Direct Marketing	Will get Actual Price	164	82.00
	More Profit	172	86.00
Shandy	Assured Selling	158	79.00
	Flock Selling	144	72.00
APMC	Assured Selling	142	71.00
	Flock Selling	136	68.00
Marketing Channels	**Disadvantages**	**F**	**%**
Direct Marketing	Takes longer duration	164	82.00
Shandy	Interference of Middlemen	174	87.00
	Transportation Risks	164	82.00
APMC	Interference of Middlemen	174	87.00
	Transportation Risks	164	82.00
	APMC Fee	142	71.00

@ Multiple response

TABLE – 21

Respondents Response on Marketing Channels of Sheep

(N=200)

No.	Particulars	Category	Respondents	
			F	%
1	Mode of Fixing Price	Lumbar-score	27	13.50
		Actual weight	197	98.50
		Outlook	99	49.50
2	Most useful & Ideal method	Lumbar-score	15	7.50
		Actual weight	189	94.50
		Outlook	42	21.00
3.	Satisfy with present marketing system	Yes	9	4.50
		No	191	95.50
4.	Alternative for new market	Direct sales from producer	184	92.00
		APMC with new rules & regulations	44	22.00
		Separate sheep market	126	63.00

@ Multiple Response

The data regarding economics of sheep were presented in Table 22. The findings revealed that the mean income was Rs 4820/- (Fig 22), the overall expenditure was Rs 1280/- (Fig. 23) and the overall profit was Rs 3540/- (Fig. 24).

4.4 CONSTRAINTS IN BANNUR SHEEP HUSBANDRY

The data presented in Table 23 and Fig 25 reveals that All the Bannur sheep rearing farmers expressed non availability of grazing area, lack of quality fodder and feeds as the major problem. Further, 99.50 per cent expressed non availability of quality Bannur sheep and 98 per cent expressed non availability of quality veterinary medicines. Further 84 per cent of the Bannur sheep rearing farmers' expressed lack of support from the government and 83.50 per cent expressed lack of proper marketing facilities. On the other hand, 19 per cent of the Bannur sheep rearing farmers expressed exploitation by middlemen and non-availability of timely laborers (1%) as the constraints in Bannur sheep rearing.

TABLE – 22

Economics of Bannur sheep rearing as expressed by the respondents (For Each Sheep)

(N=200)

No.	Category			Economics (000's)	
				Mean	SD
1	Expenditure	For Rearing	664.00	1.28	0.32
		For Labour	365.00		
		Medicine & others	251.00		
2	Income	Sale of Sheep	4070.00	4.82	1.70
		Sale of Manure	492.00		
		Sale of Wool	258.00		
3	Profit	3540.00		3.54	1.65

TABLE – 23

Constraints in Bannur sheep farming as expressed by the farmers.

(N=200)

No.	Constraints	Respondents	
		F	%
I	Non availability of grazing area, quality fodder and feeds	200	100
II	Non availability of quality breed of Bannur sheep	199	99.50
III	Non availability of Veterinary medicine and treatment	199	98.00
IV	Lack of Support from the government	168	84.00
V	Lack of proper marketing facilities	167	83.50
VI	Inadequate loan facilities	138	69.00
VII	Lack of technical information	107	53.50
VIII	Exploitation by the middlemen	38	19.00
IX	Non availability of timely labourers	2	1.00

@ Multiple Response

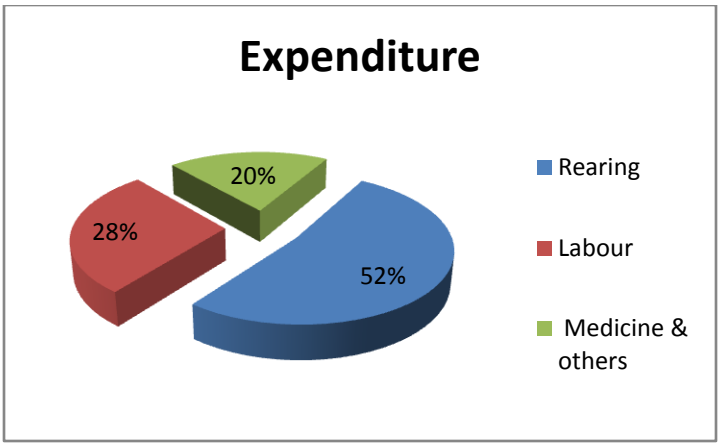

Fig. 22: Expenditure on Bannur sheep

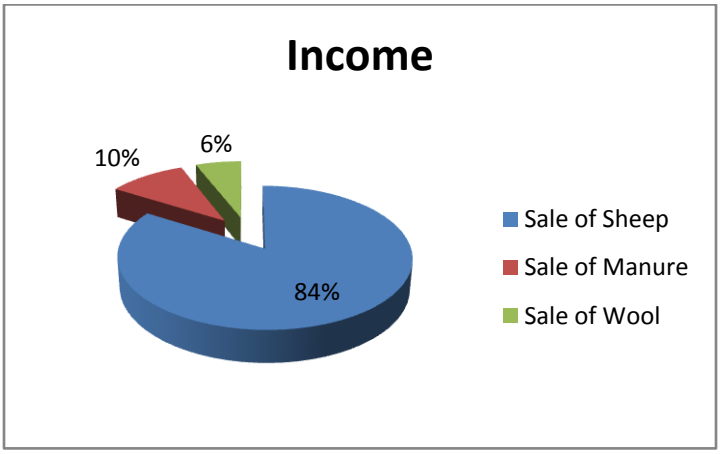

Fig. 23: Income from Bannur sheep

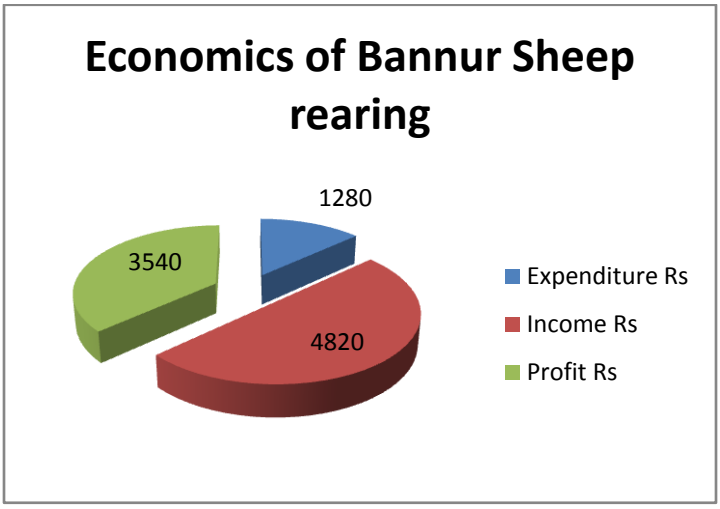

Fig. 24: Economics of Bannur sheep rearing as expressed by the respondents (For Each Sheep)

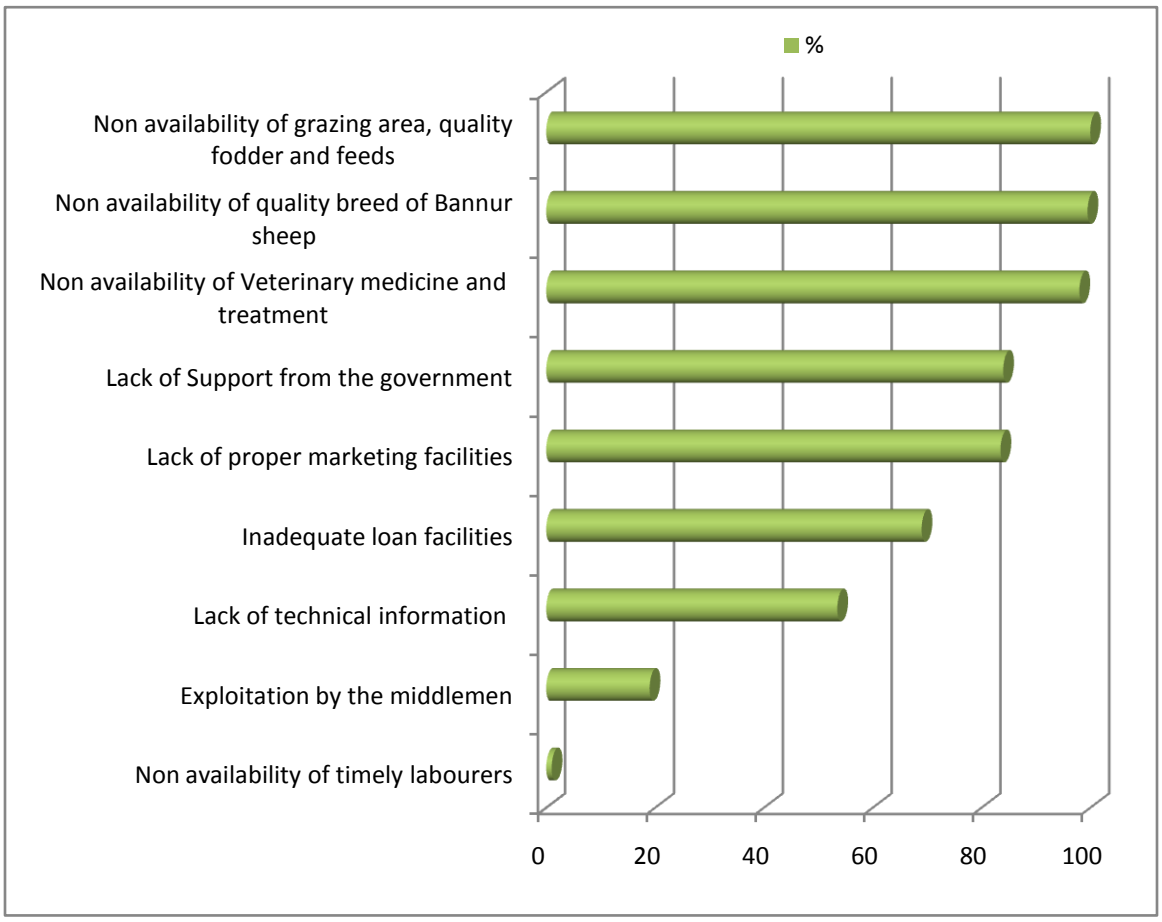

Fig. 25: Constraints in Bannur sheep farming as expressed by the farmers.

DISCUSSION

CHAPTER-V

DISCUSSION

In this chapter the results obtained were discussed and the conclusions drawn were compared with reported findings of other research investigations. This chapter has been presented with following sub headings.

5.1 The Personal, Socio-Economic and Psychological characteristics of Bannur Sheep Farmers

5.2 Rearing patterns of the Bannur Sheep farmers

5.3 Marketing patterns of the Bannur Sheep farmers

5.4 To study the possible constraints as Foreseen by the farmers in Bannur Sheep husbandry

5.1.1 Age

A glance of Table 1 indicated that majority (35.50%) of the respondents belonged to middle age group followed by old age group (34%) and young age group (30.50%). The possible reasons could be attributed to quest of the middle and young age groups for earning additional income. The similar results were reported by Tanwar *et al.*, (2008) and Rajanna *et al.*, (2012)

5.1.2 Education

A perusal of the table 2 revealed that majority (84.50%) of the respondents was illiterates followed by education up to primary school (9.50%) and middle school (6%).

The possible reason could be that the sheep rearing dependent families are not in a position to send their children for schooling as they are the source of labour. Similar results were reported by Kuldeep *et al.,* (2006) and Rajanna *et al.,* (2012).

5.1.3 Caste

A glance at Table 2 indicated that, 48 per cent of the respondents belonged to Vokkaligas community followed by Kurubas (32%) community, Schedule caste (9%), Schedule tribe (7%) and 4 per cent belonged to general community (4%). The possible reason could be that the Bannur sheep rearing was in the hands of Vokkaligas and Kurubas since ages. The findings of the present study are in consonance with the findings of Thiruvenkadan *et al.,* (2004).

5.1.4 Family size

A glance at Table 2 indicated that, the majority (53%) of the respondents belonged to medium family size followed by small (34%) and large family size (13%). This might be due to their awareness regarding the increased cost of living and difficulties of large family and they might have found it beneficial to have medium families to lead a better and comfortable life. The findings of the present study are similar to the findings of Rajanna *et al.,* (2012).

5.1.5 Main occupation

The findings from the table 3 showed that majority (51.50%) of the respondents had both agriculture and sheep farming as a major occupation followed by only sheep farming as the major occupation (48.50%). The possible reason could be that both

agriculture and animal husbandry activities are interdependent. The findings of the present study are in agreement with findings of Sharma *et al.,* (2007) and Rajanna *et al.,* (2012).

5.1.6 Annual income

A glance at table 3 indicated that 48.50 per cent had family income below Rs.13,100 followed by family income between Rs.13,100 to 22,500 (32%) and more than Rs. 22,500 (19.5%). The average annual family income was Rs. 10,7820 ± 940. The possible reason could be due to the farmers having small land holdings and they did not have additional source of income. Further, it was noticed during investigation that, majority were growing crops under rain fed conditions which could be the reason for low income. The findings of the present study are in consonance with the findings of Thiruvenkadan *et al.,* (2004).

5.1.7 Land holdings

A perusal of table 3 clearly indicated that, majority (58.5%) of the respondents are marginal farmers followed by small (30%) and landless farmers (11.5%). The reason for small land holding might be due to the regular fragmentation of land occurring in the rural areas due to nuclear families. The other reason could be due to fact that the marginal farmers had limited scope for agriculture activity in non rainy season leading to heavy dependence on the sheep farming. The findings of the present study are in consonance with the findings of Tanwar *et al.* (2008).

5.1.8 Fodder production

A glance at table 3 indicated that majority (59 %) of the respondents were growing the fodder for their sheep where as the rest (41%) did not. Most of the respondents were growing horse gram as the major fodder crop due to dependence on dry land agriculture. In addition to horse gram most of the Bannur sheep rearing farmers use tree fodder during non grazing hours.

5.1.9 Possession of Bannur sheep

The findings from the table 4 showed that, majority (95 %) of the respondents possessed only one breeding ram while 5 percent had two rams. The possible reason could be availability of quality breeding rams is very less and also maintaining two rams appear to be difficult.

Majority (62 %) of the respondents had a flock size ranging 11-20, followed by 21 to 30 (31%) and 5-10 (7%). The reason could be attributed to non availability of the grazing area and labour shortage.

Majority of the respondents were maintaining pure Bannur sheep and not mixing with any other breed. The possible reason might be that almost all the respondents knew the value of the breed and to conserve the same to the next generation.

5.1.10 Possession of other Livestock

A glance at table 5 indicated that respondents were having either rearing two cross bred cows (49 %) or one cross bred cow (22%). The possible reason could be that the dairy cows provide regular income and manure for their lands.

Majority (55.50%) of the respondents were having two local cows for both milk and draught purpose. The possible reason might be due to their dependence on local cows for agricultural operations and not in a position to afford bullocks.

Regarding possession of buffaloes, 43 per cent of the respondents possess more than 3 buffaloes, 38 per cent of the respondents possess between1 or 2. The possible reason could be attributed to higher price for their milk and also ease of maintenance.

Majority (67 %) of the respondents possessed backyard poultry to meet the family nutritional requirements.

5.1.11 Organizational participation

The findings from the table 6 showed that, majority (81%) of the respondents were occasionally participating in gram panchayat, 26.50 per cent in taluk panchayat, 1 per cent in zilla panchayat, 87 per cent in primary milk producers society, 3 per cent in sheep and wool producers society, 61.50 per cent in self help groups and 2.50 per cent in youth clubs/mahila mandal. In addition 2 per cent of the respondents are regularly participating in primary milk producers society. The possible reason could be due to their illiteracy and most of their day time consumed in sheep grazing.

5.1.12 Visit to sheep farming centers

A glance at table 7 indicated that, majority (51 %) of the respondents had not been to any of the sheep farm as they were illiterates and lack of aspiration to acquire the new technologies. However, 25 per cent of the respondents did visit Dhanagur sheep breeding farm, 21 per cent visited Nagamangala sheep farm as they were nearby.

5.1.13 Extension Contact

A perusal of the table 8 revealed that, majority (80.50%) of the Bannur sheep rearing farmers are having contact occasionally with veterinary officers, 16 per cent with veterinary extension officers, 99 per cent with veterinary livestock inspectors, 13 per cent with KMF officials, 84.50 per cent with agriculture department officials, 9 per cent with horticulture department officials, 20 per cent with sericulture department officials and in addition 19.50 per cent of the respondents were having regular contact with veterinary officer. The observation on the data suggests that the extension contact of the respondents depends on their need, and availability of extension personnel.

5.1.14 Extension participation

The findings from the table 9 showed that, majority (81.50%) of the Bannur sheep rearing farmers were occasionally participating in the animal health camps, 66 per cent in livestock fair, 16.50 per cent in exhibition, In addition 18.50 per cent of the respondents were regularly participating in animal health camps. The possible reason could be due to unfelt need and also lack of information regarding such programs.

5.1.15 Mass media Participation

The findings observed from the table 10 revealed that, majority (89%) of the Bannur sheep rearing farmers were occasional viewers of television. The possible reason being their unfavorable attitude or less interest towards such programme.

The results also observed that, 98.50 per cent of the respondents were occasional radio listeners, the possible reason might be also due to the lack of interest towards agriculture related programs when compare to entertainment programme.

The results also observed that, 12.50 per cent of the respondents were occasional news paper readers and 10.50 per cent, 4.50 per cent and 3 per cent are occasional readers of leaflets, farm magazines and books respectively. In addition only 2 per cent of the respondents were regular news paper readers. The possible reason may be due to non-subscribing to those news papers and farm magazines. Most of them are illiterates and the financial problem might have acted as an obstacle in subscribing the news papers and farm magazines.

5.1.16 Economic Orientation

A perusal of the table 11 revealed that, majority (51 %) had high level, 33 percent had medium level and 16 per cent had low level of economic orientation. The possible reason could be that Bannur sheep rearing farmers get more profit.

5.1.17 Scientific Orientation

A glance at table 12 indicated that, 45 per cent of the respondents had low level of scientific orientation, 41.50 per cent had medium level and 14 per cent had high level. The possible reason may be, due to exposure to scientific institutions and extension agencies are very low.

5.1.18 Opinion of sheep farmers on sheep rearing

A perusal of the table 13 revealed that, All the Bannur sheep farmers were interested in continuing the sheep farming and 82 per cent of the respondents were in the opinion of encouraging their children to take up Bannur sheep farming. The possible

reason could be most of the respondents are having small land holdings and they were aware of the fact that sheep farming was always profitable and fetches more income.

It was also observed that, 5.50 per cent would encourage for agriculture, 5.50 per cent opted for government job, 6 per cent opted for private job and 1 per cent encouraged their children to take up business. The possible reason could be various constraints in Bannur sheep farming made them to encourage their children to take up other income generating activities.

5.2 REARING PATTERNS OF THE BANNUR SHEEP FARMERS

5.2.1 Rearing practices of the Bannur sheep rearing farmers

A perusal of Table 14 revealed that all the farmers clean their sheep sheds regularly but do not apply any ecto-parasite solution while cleaning sheep sheds. Further 50 per cent of the farmers wash their sheep between 1-2 months, while 29.50 per cent wash once in a month and 20.50 per cent between 3-4 months and all the farmers shear their flocks twice in a year (January and July).

An insight into the table 15 clearly revealed that, the majority of the farmers identified their flock by marking with colors. Majority (95.50%) of the farmers posses closed type of housing usually house with mud walls and roof made up of cheaply available materials. The majority (97.50%) of these houses are having less ventilation and mud flooring. Majority of the farmers do not adopt any other extra managemental practices during summer season and they prefer early and late hours of the day for grazing their flock during summer. Majority of the farmers (64%) depend on rivers as a

source of drinking water for their flocks and the others mainly depend on Canal water and bore well. Majority (50.50%) of the farmers graze their flocks for 6 to 7 hours a day while 49.50 per cent of the farmers graze their flocks for 7-8 hours a day. Majority (80.50%) of the respondents revealed that sheep were given dried horse gram, horse gram husk and tree leaves after returning from grazing. The findings of the present study were in consonance with the findings of Yadav and Khada (2009), Gupta *et al.*, (2011) and Sakthivel *et al.*, (2012).

Results revealed that, majority (89%) of the farmers allowed the rams for first service at the age of 12-14 months. Only 11 per cent of the farmers allowed the rams as early as 10-12 months. Majority (64.50%) of the farmers change their breeding rams. Out of the total farmers 38 per cent of the farmers change the breeding rams within 2 years, 26.50 per cent of the farmers change between 2 to 4 years and the other 35.50 per cent of the farmers do not change the rams. The common abnormalities in the breeding rams as observed by the sheep rearing farmers were less vigor and cryptorchids.

Regarding lambs puberty age 50 per cent of the farmers opined as 11 to 12 months, 40.50 per cent of the farmers opined as 8 to 10 months, other 9.50 per cent opined, 13 to 15 months. Majority (59.50%) of the farmers allowed the lambs for first mating at the age of 11 to 12 months, 27 per cent of the farmers allowed as early as 8 to 10 months, the other 13.50 per cent at the age of 13 to 15 months. Majority of the farmers (54.50%) opined that the age at the first lambing will be 13 to 15 months and the other 45.50 percent of the farmers opined of 11 to 12 months.

The opinion from the majority (92.50%) of the farmers regarding days open was 2 to 3 months and 4 to 6 months (7.5%). Majority (99%) of the farmers observed the gestation period was 5 months and only 1 per cent opined that more than 5 months. Majority (97.50%) of the farmers indicated that only one offspring was produced in each lambing.

The common abnormalities expressed by the respondents during parturition were abortion and retention of placenta followed by still birth and early lamb mortality. The findings of the present study are in agreement with the findings of Yadav and Khada (2009), Tanwar *et al.*, (2011) and Sakthivel *et al.*, (2012).

The results in Table 18 showed that the common diseases observed by the farmers were Bluetounge, P.P.R, Enterotoxaemia and Endo parasites. Majority of the farmers administer the medicines either by drenching or through drinking water and all the farmers take the advice either from veterinarian or veterinary livestock inspectors. Majority of the farmers adopt regular vaccination, the common vaccinations taken up were Foot and Mouth disease, Blue tongue, PPR and E. T. The findings of the present study are in consonance with the findings of Viroji Rao *et al.*, (2008), Deshpande (2009) and Reeja George *et al.*, (2010).

The various ITK's adopted by the respondents were also presented in the table 18. As high as 96 per cent of the shepherds feed neem leaves once in fortnight for disease prevention, 64 per cent of the Bannur sheep rearing farmers use extract of thumbe leaves for skin allergy, 52 per cent of the Bannur sheep rearing farmers use ginger, pepper powder, bhaje juice for indigestion, 43 per cent of the Bannur sheep rearing farmers use

powdered beetle nut and jaggery for bloat, 38.50 per cent of the Bannur sheep rearing farmers use egg of local hen with shell for excess salivation and cough, 36 per cent of the Bannur sheep rearing farmers use touch me not leaves (*Mymosa pudica*) with areca paste for dysentery, 31.50 per cent of the Bannur sheep rearing farmers use turmeric, vanaspathi for udder swelling, 30.50 per cent of the Bannur sheep rearing farmers use mixture of coconut and jaggery for anorexia, 28.50 per cent of the Bannur sheep rearing farmers use extract of neem leaves for ring worm and 28 per cent of the Bannur sheep rearing farmers use egg of local hen with asafoetida for FMD. The possible reason could be the ingredients available within the village and provides effective results.

5.3 MARKETING PATTERN OF BANNUR SHEEP

A glance at Table 19 indicated that, majority (63 %) of the Bannur sheep farmers separate their sheep by age before selling and 37 per cent by numbers. Majority (55%) of the respondents sold the sheep directly, while 45 per cent of the respondents sold through middlemen. Majority (92 %) of the respondents opined that middlemen were not helpful in marketing and direct marketing would help the sheep farmers. In the study area the common marketing channels available were through middlemen, shandy and APMC market.

It was also observed that, 45.00 per cent of the respondents sell through middlemen and 47 per cent of the respondents sell their sheep during shandy and 8 per cent of the respondents sell through APMC market.

The advantages expressed by the farmers were securing actual price (82%) and more profit (86 %) in direct marketing, assured selling (79%) and whole flock selling

(72%) in shandy and assured selling (71%) and whole flock selling (68%) in APMC markets.

The disadvantages opined by the farmers on different marketing channels were direct marketing takes a longer duration (82%), interference of middlemen (87%), transportation risk in shandy markets (82%) and interference of middlemen (87%), transportation risk (85%) and APMC fees (71%) in the APMC market.

A perusal of table 21 indicated that majority of the respondent (98.50%)were of the opinion that the actual weight basis method is the best method in fixing the price, followed by outlook (49.50%) and lumbar score (13.50%). Majority (94.50%) of the respondents indicated that actual weight basis method is the most ideal method of marketing, followed by outlook (21.00%) and lumbar score (7.50%). Majority of the respondents (95.50%) were not satisfied with the present marketing system. Regarding the alternatives in the marketing system, majority of the respondents (92 %) indicated the direct sale from the producer, new regulations in the A.P.M.C market (22.00%) and separate sheep market (33.00%) would help in securing actual price. The findings of the present study are in accordance with the findings of Deoghare(2001), Arun Pandit and Dhaka (2005), Srivastava and Saraswat (2006), Lavania and Singh (2008), Senthilkumar *et al.*, (2012) and Tanwar *et al.*, (2012).

While calculating the economics (Table 22) of Bannur sheep rearing, the respondents attributed expenses for feeding, labour and medicines totaling Rs.1280/- for each lamb. Income obtained through sale of sheep, its manure and wool amounts to Rs.

4820/- resulting to the profit of Rs. 3540/-. These findings are in contrary with findings of Suresh *et al.* (1994).

5.4 CONSTRAINTS AS FORESEEN BY THE FARMERS IN BANNUR SHEEP HUSBANDRY

Inadequate grazing land was the major production problem. All the sheep farmers expressed the inadequacy of grazing land. Thus it implies the gravity of this problem with small Bannur sheep rearing farmers. The large Bannur sheep rearing farmers managed to graze their animals on their waste lands, orchard and in the forests. Misuse of grazing lands for other purposes might have resulted in reduction of grazing lands in the villages.

Non-availability of quality feed and fodder was another production problem faced by Bannur sheep rearing farmers. All the respondents expressed the lack of availability of quality feed and fodder. In absence of sufficient grazing facility this will further add up to production problem. Collective action in collection and purchase of feed and fodder would help them to reduce their problems. Cooperatives can be established to procure or purchase feed and fodder on collective basis which would work out cheaper apart from being available at the time of need. Similar results were given by Prabaharan and Thirunavakkarasu (1994), Dinesh Kumar (2003), Senthil and Meghanathan (2005).

It was also observed that, majority (98%) of the farmers indicated the lack of timely veterinary advice, treatment and medicines. Similar results were given by Singh *et al*, (2006) and Wani *et al*, (2009) and Selvam. (2011).

It was also observed from their opinion that lack of support from the government, lack of marketing facilities, inadequate loan facilities and lack of technical information were the other major constraints. Similar results were given by Eswara and Radha (1996), Sagar and Biswas (2008), Thilakar and Krishnaraj, (2007) and Senthil and Meghanathan (2005).

SUMMARY

CHAPTER IV

SUMMARY

Bannur or Bannur or Mandya sheep breed has been acclaimed to be one of the most important and dominant indigenous breed of Karnataka and India. Bannur breed has been in limelight ever since its development and continues to be the only outstanding and the best Mutton breed of the State. This breed was used as one of the parental indigenous breed to develop other breeds. Thus, this breed has made stamping impression on the society and the farmers in the native tract. However because of various reasons, the Bannur sheep is under the verge of extinction, thus it was thought proper and most conducive to undertake a research study entitled "An exploratory study on Bannur sheep" which was contemplated with the following objectives.

6.1 The personal, socio-economic and psychological characteristics of Bannur sheep farmers

6.2 Rearing patterns of the Bannur sheep farmers

6.3 Marketing patterns of the Bannur sheep farmers

6.4 To study the possible constraints as foreseen by the farmers in Bannur sheep husbandry

The present study was conducted with these objectives and exploratory research design set forth for the study. Mandya and Mysore districts were selected purposively for the study, the two taluks, Malavlli and T. Narasipura were selected. Ten villages from each taluk were selected randomly. Ten respondents from each village were taken for the

investigation. Total sum of 100 respondents from each taluk were interviewed at selected villages in order to collect the data.

Thus, the present study covered 200 members, belonging to 20 villages, 2 taluks and 2 districts of the state. The data were collected through a structured interview schedule for the Bannur sheep rearing farmers. The collected data was coded, tabulated, analyzed and the results were summarized as follows.

Among the total members of the Bannur shepherd all age groups involved in sheep farming. Majority of the respondents were illiterate and very few had primary and secondary education. With regard to family size, majority (53%) the respondents belonged to medium family size. Sheep rearing was found more popular among Vokkaliga community (48%) followed by Kurubas community. Agriculture with sheep farming found to be the major occupation (51.50%) among the respondents and the majority (58.50%) of the respondents were marginal farmers.

With regard to annual income, 48.50 per cent of the respondents had an annual income of below Rs 13.100/-, 32 per cent of the respondents had an income between Rs 13,100/- to Rs 22,500/- and mean annual income of the respondents was Rs 17,820/-. The majority (59%) of the respondents grow horse gram as fodder crop for their sheep. The majority (95%) of farmers' rear only one breeding ram and majority of them had a flock size ranging 11-20.

Majority of the respondents possessed one or two local cows, more than three buffaloes and backyard poultry. Respondents' participation in various organizations

found occasional except a few farmers who regularly found participating. Majority (51%) of the respondents did not visit any of the sheep farm, however 25 per cent of the respondents visited Dhanagur sheep breeding farm, 21 per cent visited Nagamangala sheep farm for seeking practical and technical advice.

Regarding extension contact most of the farmers occasionally contacted veterinary officers, veterinary livestock inspectors, agriculture department officials and KMF officials. While19.50 per cent of the respondents were having regular contact with veterinary officers. Majority of the farmers occasionally participated in animal health camps (81.50%), livestock fairs (66%), exhibitions (16.50%), educational tour and general meetings (10.50%). In addition 18.50 per cent of the respondents were regularly participating in animal health camps.

Majority of sheep rearing farmers were occasional viewers of television, occasional listeners of radio and occasional readers of news paper, leaflets, farm magazines and books. In addition only 2 per cent of the respondents were regular news paper readers.

Majority of sheep farmers have higher economic orientation and scientific orientation. All the Bannur sheep farmers were interested in continuing the sheep farming and 82 per cent of the respondents were in the opinion of encouraging their children to continue sheep farming, while others opted for various other enterprises.

Almost all the farmers clean their sheds regularly but use of ecto-parasite solution found not common. Washing of sheep practiced once in two months and almost all the

farmers sheared their flocks twice in a year (January and July). Majority of the farmers identify their flock by marking with colors.

Majority (95.50%) of the farmers possessed closed type of housing, usually house with mud walls and roof made up of cheaply available materials. The majority (97.50%) of these houses are having less ventilation and mud flooring. All the farmers do not take any other extra managemental practices during summer season except grazing in the early and late hours of the day. Majority (64%) of the farmers depend on rivers as a source of drinking water for their flocks. Majority (50.50%) of the farmers graze their flocks for 6 to 7 hours a day and the majority of the respondents revealed that the sheep were given with dried horse gram and horse gram husk after returning from grazing.

Majority (89%) of the farmers allowed the rams for the first service at the age of 12-14 months. Majority (64.50%) of the farmers change their breeding rams between 2 to 4 years. The common abnormalities found in the breeding rams were less vigor and cryptorchidism.

Farmers opined that the age at puberty of lamb's was 11 to 12 months (50%), Farmers allowed the lambs for first mating at the age of 11 to 12 months (59.50%). Majority (54.50%) of the farmers opined the age at the first lambing will be as early as 13 to 15 months. The opinion from the majority (92.50%) of the farmers regarding inter gestation period was 2 to 3 months. Majority of the farmers (99%) observed the gestation period as 5 months. Majority (97.50%) of the farmers indicated that only one offspring was produced in each lambing. The common problems found during parturition were abortion and retention of placenta followed by still birth and early lamb mortality.

The common diseases found affecting sheep in the study area are Bluetounge, P.P.R, Enterotoxaemia and Endo parasites. Majority of the farmers adopt regular vaccination, the common vaccinations taken up against Foot and Mouth disease, Blue tongue, P.P.R, and E. T. The various ITK's adopted by the respondents were also presented in the table 18. Majority of the sheep rearing farmers feed neem leaves once in fortnight for disease prevention, use extract of thumbe leaves for skin allergy and use ginger, pepper powder, bhaje juice for indigestion,

Majority of the Bannur sheep farmers segregate sheep according to age and most of sell their sheep through middlemen. Bannur sheep farmers opined that securing actual price and getting more profit were the advantages in direct marketing and assured selling of whole flock in the shandy and APMC market. The disadvantages of different marketing channels were longer duration in direct marketing, interference of middlemen and transportation risk in shandy and higher fees in APMC.

Majority (98.50%) of the respondents indicated that the actual weight basis method is the best one in fixing the price and most ideal method of marketing. Majority of the respondents were not satisfied with the present marketing system. Regarding the alternatives in the marketing system, majority (92%) of the respondents indicated the direct sale from the producers, separate sheep market and new regulations in the A.P.M.C market would helpful.

Inadequate grazing land, non availability of quality feed and fodder, lack of timely veterinary advice and treatment, improper marketing facilities, exploitation by the

middlemen, non availability of the quality Bannur breed, lack of information sources and lack of support from the government were major constraints faced by the sheep farmers.

The implications and recommendations of the study were as follows:

1. There is necessity to develop alternative technology for rearing of Bannur sheep, as the sheep rearing farmers were facing the problem of inadequate grazing lands.
2. The finding of the study indicated that the respondents are facing the problems of sheep marketing. Efforts may be initiated to establish separate market for selling Bannur sheep and wool as it fetches higher price especially at Malavlli taluk.
3. Support in the form of loan and subsidy for Bannur sheep farmers will encourage them to conserve and propagate the valuable breed.
4. Establishing cooperative societies exclusively for Bannur sheep farmers in the breeding tract would ensure timely and adequate supply of inputs and channelize the marketing process.

BIBLIOGRAPHY

CHAPTER VII

BIBLIOGRAPHY

ANANDA RAO, K., SARJAN RAO, K., JAGEESWARA RAO, S., RAVI, A. and ANITHA, A., 2011. Studies on migration of sheep flocks in north coastal zone of Andhra Pradesh: Identification of traditional migratory tracts. *The Indian Journal of Small Ruminants*, **17**(2):260-263

ARUN, P. and DHAKA, J.P., 2005, Efficiency of male goat markets in the central alluvial plains of West Bengal. *Agric. Econ. Res. Rev*., **18**(2):197-208

DASSGOPAL, MANDAL, AJOY and ROUT, P. K., 2012. Rearing practices, Morphological characteristics and Growth Performance of Muzaffarnagari Sheep in its Home tract. *The Indian Journal of Small Ruminants*, **18**(1):37-40

DEOGHARE, P. R., 2001. Marketing of Barbari goats in Etah district of Uttar Pradesh. *The Indian Journal of Small Ruminants*, **7**(2):96-101

DESHPANDE, S.B., SABAPARA, G. P and KHARADI, V. B., 2009. A study on breeding and health care management practices followed by goat keepers in south Gujarath region, *Indian J .of Animal Research.* **43**(4):259-262

DESHPANDE, S. B., SABAPARA, G. P., KHARADI, V. B. 2010, Socio-economic status of goat keepers in south Gujarat region. *The Indian Journal of Small Ruminants*, **16** (1):92-96

DINESH KUMAR, 2003. A study on problems encountered in sheep rearing in Rajasthan. *The Indian Journal of Small Ruminants*, **9**(1):43-46

ESWARA PRASAD, Y. and RADHA, Y., 1996, Constraints in sheep marketing: perception of marketing of sheep and sheep products. *Indian J. Agric. Mktg*., **10**(2): 105

GUPTA D.C., SURESH A. and SETHI, D., 2011, Economics of sheep and goat rearing in semi-arid region of Rajasthan. *The Indian Journal of Small Ruminants*, **17**(2):215-221

GURJAR, M.L., PATHODIYA, O.P. and TAILOR, S.P., 2009. Feeding practices of goats adopted by the farmers of Mewar region of Southern Rajasthan. *The Indian Journal of Small Ruminants,* **15**(1):68-73

GURJAR, M.L., PATHODIYA, O.P., JINGAR, S.C. and SHARMA, M.C., 2008. Health care and marketing practices of goats in Mewar region of Southern Rajasthan. *The Indian Journal of Small Ruminants,* **14**(2):243-247

JITENDER, B., PANDEY U. K. and SUHAG, K. S., 2005, Small ruminant's economy of semi-arid region in Haryana. *Indian Journal Agricultural Economics*, **60**(2):163-183

KUMARAVEL, P. and KRISHNARAJ, R., 2007. Adoption of improved sheep and goat husbandry practices in Pudukottai district of Tamil Nadu. *The Indian Journal of Small Ruminants*,**13** (1): 47-50

LAHOTI, S.R. and CHOLE, R.R., 2010. Adoption of feeding practices by goat keepers. *Indian J. Anim. Research.,* **44**(1): 52-54

LAVANIA PANKAJ and SINGH, P.K., 2008. Goat marketing practices in Southern Rajasthan. *The Indian Journal of Small Ruminants,* **4**(1):99-102

MEENA, M. L., SINGH, H. C., AISHWARYA DUDI, AJAY KUMAR and CHAUHAN, S. V. S., 2011. Goat Keepers Adoption about Improved Goat Production Practices. *Indian Research Journal of Extension Education*, **11**(1):39-43

MEHTA, S. C., VIJ, P. K., NIVSARKAR, A. E. and SAHAI, R., 1995. Sheep husbandry practices in Sonadi and Malpura breeding tract. *The Indian Journal of Small Ruminants*, **1**(1): 1-7

PORWAL KULDEEP, KARIM, S. A., SISODIA, S. L. and SINGH, V. K., 2006. Socio-Economic survey of sheep farmers in western Rajasthan. *The Indian Journal of Small Ruminants*, **12**(1): 74-81

PRABAHARAN, R. and THIRUNAVUKKARASU, M., 1994. Constraints in goat farming – a study in Tamil Nadu. *Indian J. Dairy Sci.,* **47**(12): 1061-1063

PRABAHARAN, R., and THIRUNAVAKKARASU, N., 1995. Income and employment dynamics of goat farms in different agro climatic zones of Tamil Nadu. *Indian J. Animal Prod. Mgmt*., **11**(1): 14-26

RAJANNA, N., MAHENDAR, M., THAMMIRAJU, D., RAGHUNANDAN, T., NAGALASHMI. D. and SREENIVASA RAO, D., 2012. Socio-Economic Status and Flock Management Practices of Sheep Farmers in Telangana Region of Andhra Pradesh. *Veterinary Research*, **5**(2):37-40

REEJA GEORGE, P., RANGANATHAN, T.T., SHIBU SIMON and PRADEEP, C. A., 2010. Knowledge of farm women of Waynad district, Kerala about goat rearing practices. *Indian J. Anim. Research* , **44**(1) :61-63

SAGAR, R.L. and BISWAS. A., 2008. Constraints in Garole sheep rearing in Sunderbans. *The Indian Journal of Small Ruminants*, **14**(1):89-92

SAGAR R.L. and OJHA, S.N., 1998. Goat farmers perception of the constraints and factors helping in organizing a goat cooperative society. *The Indian Journal of Small Ruminants*, **4**(2):73-78

SAKTHIVEL, K.M., NARMATHA, N., AKILA, N and UMA, V., 2012. Management practices followed by goat farmers in Namakkal district of Tamil Nadu. *The Indian Journal of Small Ruminants,* **18**(1):125-128

SELVAM, S., 2011. An analysis of growth of small ruminant population in Tamil Nadu. *The Indian Journal of Small Ruminants,* **17**(2):256-259

SENTHIL KUMAR, G. and MEGANATHAN, N., 2005. Marketing of Sheep / Mutton. *Indian J. Mar.*, **19**(3): 52-60

SENTHILKUMAR, S., RAMPRABHU, R., PANDIAN, A. and SERMA SARAVANA., 2012. A Case Study on Small ruminant marketing practices in southern Tamil Nadu. *The Indian Journal of Small Ruminants*, **18**(1):129-131

SHARMA, M.C., PATHODIYA O.P., JINGAR, S.C. and GAUR MITESH ., 2007. A study on socio-economic status of goat Bannur sheep rearing farmers and adoption of management practices. *The Indian Journal of Small Ruminants*, **13**(1):75-83.

SHINDE, A. K., RAGHAVENDRA BHATTA, SANKHYAN, S. K., SINGH, N.P. and VERMA, D. L., 2003. Economics of goat rearing in an organized farm. *Indian J. Small Ruminants*, **9**(1):32-34

SINGH, D. R., SUSHILA KAUR and SIVARAMANE, N., 2006. Migratory sheep and goat production system : the mainstay of tribal hill economy in Himachal Pradesh. *Agric. Econ. Res. Rev.*, **19**: 387-398

SINGH, N.P., 1998. Production performance of Kutchi goats under different systems of feeding management. *The Indian Journal of Small Ruminants.* **4**(2): 57-62

SRIVASTAVA, S. P. and SARASWAT, B.L., 2006. Marketing of Janapuri goats in its native tract. *Indian J. Ani. Res.*, **40**(2): 127-130

SUBASH CHANDRA, 2002. Capacity building of informal institutions through watershed management programs in hilly area: An experience in Nilgiris. *National Bank Reviews*, **18**(4): 43-49

SURESH, A., GUPTA, D. C. and MANN, J.S., 2008. Farmers' management practices and economics of sheep farming in eastern semi-arid region of Rajasthan. *The Indian Journal of Small Ruminants.* **14**(2):236-242

TAILOR, S. P., DANGI, P. C., YADAV, C. M., MEENA, R. K. and BUNKAR, N. K., 2005. Socio-economic status of shepherd in Sonadi breeding tract. *Indian J. Small Ruminants*, **11**(2):198-204

TAILOR S. P. and YADAV C.M.2010. Feed resource availability and growth performance of Sonadi sheep in their native tract. *Indian J. Small Ruminants,* **16**(1):120-121

TANWAR P. S. and CHAND KHEM., 2011. Existing grazing and supplementary feeding practices of goats in semi-arid Rajasthan. *Indian J. Small Ruminants*, **17**(2):240-242

TANWAR, P.S., VAISHANAVA, C.S. and JAIN, L.S., 2007. Studies on housing and breeding management practices adopted by goat owners in tribal areas of Udaipur district. *Indian Journal of Animal Research.* **41**(1): 59-61

TANWAR, P.S., VAISHANAVA, C.S. and VISHNU SHARMA., 2008, A study on socio-economic aspects of goat keepers and management practices prevailed in the tribal area of Udaipur district of Rajasthan. *Indian J. of Animal Research*, **42**(1):71-74

TANWAR, P.S. and ROHILLA, P. P., 2012. Goat management practices adopted by farmers in Jaipur district of Rajasthan. *The Indian Journal of Small Ruminants,* **18**(1):121-124

THILAKAR. P. and KRISHNARAJ. R., 2007. Constraint analysis in sheep farming. *Indian Journal of Animal Research.* **41**(2):134-137

THIRUVENKADAN, A. K., KARUNANITHI, K. and PURUSHOTHAMAN, M.R., 2004, Socio-economic status of the Merchers sheep farmers and economics of rearing under farmer's management. *Indian J. Small Ruminants,* **10**(2): 117-122

THOMBRE. B.M., SURADKAR. D. D. and MANDE. J. V., 2010. Adoption of improved Goat Rearing Practices in Osmanabad District. *Indian J. of Anim. Research*. **44**(4):260-264

VERMA, R. K. and SHARMA, N.K., 2009. Knowledge of sheep farmers about improved sheep production technologies. *Indian J.Res*, **43**(4): 275-278

VIROJI RAO, S. T., D THAMMI RAJU, D and RAVINDRA REDDY, Y., 2008. Adoption of sheep husbandry practices in Andhra Pradesh, India. *Livestock Research for Rural Development*, **20**(7)

WANI, S. A., WANI, M. H., YUSUF SHOAIB, SARAF SAJAD, A. and GANAI SHABIR, A. 2009. Constraints in rearing Changthangi goats in cold arid region of Jammu and Kashmir. *The Indian Journal of Small Ruminants*. **15**(1):74-79

YADAV C. M. and KHADA B. S., 2009. Management practices and performance of goats in tribal belt of Dungarpur district in Rajasthan. *The Indian Journal of Small Ruminants* **15**(1):131-133

YADAV C.M. and TAILOR S.P., 2010. Grazing and housing practices of sheep in Southern part of Rajasthan. *The Indian Journal of Small Ruminants*, **16**(2):287-289

ABSTRACT

CHAPTER VIII

ABSTRACT

Bannur or Bandur or Mandya sheep breed has been acclaimed to be one of the most important and dominant indigenous breed of Karnataka. Bannur breed has been in limelight ever since its development and continues to be the only outstanding and the best Mutton breed of the State and Country. An exploratory research design was adopted to study the Bannur sheep in the native tract and thus 200 respondents from Malavalli and Bannur villages were selected purposively for the study.

The study revealed that all most all age groups were involved in sheep farming, majority (84.50%) of them illiterates with a medium family size and their annual income is low. Most of them were small and marginal farmers with low livestock possession, had low extension participation, extension contact and less media exposure. Majority of them adopted complete grazing in the forest area for 6 to 7 hours per day and feed horse gram, horse gram husk and greens leaves from the trees during non grazing hours. Flock size of 11-12 was the most common and they mainly depend on rivers as a source of drinking water. The common vaccinations adopted were against Foot and Mouth disease, Bluetongue, PPR and E. T. Majority of the sheep were sold through middlemen or during shandy.

The major problems observed in rearing were non availability of grazing area, lack of quality feed and fodder, timely veterinary advice, costly medicines, inadequate market facilities, lack of technical knowledge and non-availability of quality breeding rams.

APPENDICES

APPENDICES

INTERVIEW SCHEDULE

I. ***General Information, Socio-economic and psychological characteristics.***

Sl. No	Particular	Responses
1	Name of the farmer	
2	Age	
3	Address	
4	Education	Illiterate/Primary school / Middle school /High school/ College
5	Caste	
6	Family	Men:
		Women:
		Children: Male : Female :
7	Main occupation	
	Subsidiary occupation	
8	Annual Income	
9	Land holdings of the family	Dry land :
		Wet land:
		Garden :
		Total :
10	Fodder production	Cultivated: Purchased:
11	Possession of animals	
	Bannur sheep	Male: Female:
	Other sheep breeds	Male: Female:
12	Other Livestock	
	Cows	Cross breed : Local :
	Buffaloes :	
	Poultry birds :	

13. Organizational participation:

Organization	Participation		
	Regular	Occasional	Never
1. Gram Panchayath			
2. Taluk Panchayath			
3. Zilla Panchayath			
4.Primary Milk producers society			
5. Sheep & wool producers society			
6. Self help groups			
7. Youth club/ Mahila mandal			
8. School development committee			

14. Have you visited any of the following sheep farming centers?

Farms	Yes	No
1.Not visited any sheep farming centers		
2. Dhangur sheep farm		
3. Nagamangala sheep farm		
4. Veterinary department farm		
5. Others		

15. Extension Contact

Have you contacted any of the following extension persons for getting scientific advice?

Extension person	Frequency of use		
	Regularly	Occasionally	Never
1.Veterinary officer			
2.Vety extension officer			
3.Veterinary Livestock Inspector			
4.Extension Guide			
5.Sheep board extension officer			
6. Karnataka Milk Producers Federation Extension officer			
7. Agriculture Department officials			
8.Horticulture Department officials			
9.Sericulture Department officials			

16. Extension Participation:

Activities	Regular	Occasional	Never
1.Training Program			
2.Demonstration			
3.Livestock Fair			
4.Educational Tour			
5.Exhibitions			
6.Animal Health Camps			
7.General Meetings			

17. Mass media Participation:
How often you attended to the following Mass media during last two years?

Media/Subscriber	Frequency of use		
	Regularly	Occasionally	Never
1.News paper			
2.Farm magazines			
3.Leaflets			
4.Television			
5.Radio			
6.Books			

18. Economic Orientation

1. One has to work hard to get better production and profit Yes/No
2. One should follow modern technologies to get better income. Yes/No
3. Among all the breeds Bannur breed is the best one Yes/No
4. Sheep rearing is difficult without financial assistance Yes/No
5. Up-gradation is required to improve the meat quality in Bannur sheep. Yes/No

19. Scientific Orientation

No	Orientation	Agree	Disagree	Can't say
1	New technologies gives better results when compare to old technologies.			
2	The technologies practiced by our ancestors in sheep farming can produce better results even today.			
3	Will new technology reap benefits even though there is more time being utilized on the same?			
4	To increase the Socio-Economic status, should farmers adopt new technologies			

Sheep Rearing

Are you interested in continuing the sheep farming? Yes/No

If yes, do you encourage your children to take up sheep farming? Yes/No

Or else which profession do you want your children to fair in:

Agriculturist/ Govt. Employee / Private Employee/ Businessmen / Others

II. Rearing Practices

1. Do you clean the Sheep shed daily? Yes/No

2. Is Ecto- parasitic solution spray used while cleaning the sheep shed? Yes/No

3. How often do you wash the sheep?

4. Which Ecto parasitic solution do you use, why?

5. How often do you shear the sheep in a year?

6. How do you identify your flock?

   a. Ear tags

   b. Marking with Colors

   c. Others

7. Housing

   a. Open type: b. closed housing:

8. Rough floor surface: b. Litter: c. Mud floor:

9. Managemental practices adopted during summer:

10. Water Management

a. Tap water / Bore well

b. Canal water

c. River water

11. How many hours do you graze the sheep?

12. How much, and which type of fodder given to sheep in sheep shed after return from grazing.

13. Breeding

A. Ram lambs

a. The age at first service

b. Do you change the breeding rams? Yes/No

c. If yes how often do you change the rams?

d. The common problems of rams

1. Less vigor

2. Crypt orchid

3. Others

14. Lambs

a. Age at puberty

b. Age at first mating

c. Age at first lambing

d. Days open

e. Gestation period

f. Abnormalities

1. Abortion

2. Retention of placenta

3. Still birth.

4. Early lamb mortality

15. What are the common diseases in sheep rearing?

No	Diseases
1	Foot and Mouth
2	Blue Tongue
3	P.P.R
4	Enterotoxaemia
5	End parasites
6	Others

16. Common ITK's practices by Bannur sheep rearing farmers

17. Method administration of medicines?

Drenching/ through drinking water

18. From whom you get the advice to administer the medicines?

1. Veterinarian

2. VLI

19. What are the common vaccinations adopted regularly?

1. Foot and Mouth Disease

2. Blue Tongue

3. P.P.R

4. Enterotoxaemia

5. Others

III. Marketing of sheep

1. How do you separate the selling sheep?
   No's:

   Age:
2. Do you sell the sheep directly? Yes/No
3. Do you sell the sheep through middlemen? Yes/No
4. Do you get profit by middlemen? Yes/No
5. If No, What should be done?
   Avoid middlemen

   Direct marketing

   Through self help group
6. How are you marketing

   Direct marketing

   Shandy

   APMC
7. Of the above what are the advantages and disadvantages

		Direct Marketing	Shandy	A.P.M.C
	1			
Advantages	2			
	3			
	1			
Disadvantages	2			
	3			

8. How do you fix the price?
   a) Lumbar-score
   b) By actual Weight.
   c) By Outlook.

9. Which is the most useful & ideal method of the following:
   a. Lumbar-score
   b. By actual Weight.
   c. By Outlook.

10. Do you satisfy with present marketing system? Yes/No

11. If No, How should be the new market ?

    No middlemen

    Direct sales from the producer

    A.P.M.C with new rules and regulations

    Separate sheep market

12. Income from sheep farming

    Expenditure for rearing

    for labour

    Others

    Income: sale of sheep

    Manure

    Others

IV. Constraints in Bannur sheep farming:

1. Non availability of quality breed of Bannur sheep
2. Non availability of grazing area, quality fodder and feeds.
3. Non availability of Veterinary medicine and treatment.
4. Inadequate loan facilities
5. Lack of proper marketing facilities
6. Exploitation by the middlemen
7. Non availability of timely labours
8 Lack of technical information.
9. Lack of support from the government

****