

**ADOPTION OF GOAT REARING PRACTICES IN  
RISOD TAHSIL OF WASHIM DISTRICT**

**THESIS**

**Submitted to  
Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola  
in partial fulfilment of the requirements  
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**MASTER OF SCIENCE  
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AGRICULTURE  
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## DECLARATION OF STUDENT

I hereby, declare that the experimental work and its interpretation of thesis entitled “**ADOPTION OF GOAT REARING PRACTICES IN RISOD TAHSIL OF WASHIM DISTRICT**” or part thereof has neither been submitted for any other degree or diploma of any University, nor have the data have been derived from any thesis or publication of any University or Scientific Organization. The sources of material used and all assistance received during the course of investigation have been duly acknowledged.

Place: Nagpur

Date: 17/06/2019

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Enrolment No. KK / 1703

## CERTIFICATE

This is to certify that the thesis entitled submitted in partial fulfilment of the requirement for the degree of “**ADOPTION OF GOAT REARING PRACTICES IN RISOD TAHSIL OF WASHIM DISTRICT**” submitted in partial fulfilment of the requirement for the degree of “**Master of Science in Agriculture (Animal Husbandry and Dairy Science)**” of Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola is a record of bonafide research work carried out by **Ambhore Vaibhav Pandit** under my guidance and supervision.

The subject of the thesis has been approved by the student’s Advisory Committee.

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**(D) List of Abbreviations**

%	-	per cent
@	-	at the rate of
A.I.	-	artificial insemination
CP	-	crude protein
DM	-	dry matter
et al.	-	et alia (and others)
Etc.	-	et cetera
GDP	-	Gross domestic product
Fig.	-	Figure
ha.	-	Hectare
i.e.	-	That is
Kg.	-	Kilogram
Lit.	-	Liter
No.	-	Number
NS	-	Non-significant
SM	-	Small farmer
S.E.	-	Standard error of means
Std.	-	Standard
TDN	-	Total digestible nutrients
Viz.	-	Namely



## ABSTRACT

The present investigation entitled “Adoption of goat rearing practices in Risod tahsil of Washim district” was carried out by randomly selecting 120 goat keepers by selecting one tahsil namely Risod. From Risod tahsil, six villages were selected randomly and from each village 20 goat keepers were again selected constituting 120 goat keepers and were classified in four different flock size groups i.e. very small (1-10 goat), small (11-25 goat), medium (26-50 goat) and large (above 50 goat).

The findings indicated that maximum number of the goat keepers were having middle age group (49.16 per cent), illiterate (39.16 per cent), family size small group (43.34 per cent), possessed landless (29.18 per cent) and medium level of family size (63.89 per cent).

With regards to the knowledge of goat keepers, majority (40.83 per cent) of them were observed in high knowledge category followed by medium (35.83 per cent) and low (23.34 per cent) knowledge category of goat rearing management practices.

With regards to the adoption of goat keepers, majority (42.50 per cent) of them were observed in medium adoption category followed by high (31.66 per cent) and low (25.84 per cent) adoption category of goat rearing management practices.

In feeding practices majority goat keepers generally followed only grazing (84.16%). Feeding of green fodder 22.50 per cent, dry fodder 15.83 per cent. Additional ration to pregnant doe feed 26.66 per cent, feeding common salt 36.66 per cent and feeding concentrate 13.33 per cent. The processing of concentrates before feeding was followed by 20.83 per cent goat keepers. While none of the goat keepers stall feeding. While none of the goat keepers were use of mineral mixture or mineral brick.

However, 36.66 per cent goat keepers feeding common salt. The feeding of concentrate mixture separately used by 28.34 per cent goat keepers and feeding with roughages were followed by 71.66 per cent goat keepers.

In management practices related to breeding all of the goat keepers goat keepers adopt natural breeding While none of the goat keepers were adopt artificial insemination and cross breeding. However, 59.16 per cent and 71.66 per cent goat keepers adopted care after service and drying milk at advanced stage of pregnancy respectively.

In management practices related to health care and sanitation majority of goat keepers adopt control of external parasite 33.33 per cent, followed by vaccination 25.00 per cent and washing of goat only 14.16 per cent. While none of goat keepers adopted deworming of goat.

The major constraints expressed by the goat keepers were high cost of concentrates, high cost of green fodder, high cost of mineral mixture, lack of scientific knowledge, lack of technical guidance, shortage of green fodder, non-availability of veterinary aids, lack of loan facility and lack of space and constraints in housing management.

Hence, it is concluded that there is need to rearing management of goat on scientific line which includes, proper feeding, breeding, housing and health care. So, regular training programs of goat owners in the area *viz.*, vaccination, deworming, fodder cultivation, A.I., etc. should be undertaken to make the dairy sector sustainable.

# Chapter I

## INTRODUCTION

### 1.1 Background Information

Agriculture and allied sector contribute nearly 20 per cent of India's Gross Domestic Product (GDP) and more than two third of population is dependent on agriculture for their livelihood. Amongst the major activities related to agriculture, animal husbandry stands as an important sector. Livestock sector contribute nearly 8 per cent to total GDP. Livestock plays an important role in socioeconomic life of India. It is rich source of high quality food such as milk, meat, eggs etc. In India, livestock provide regular supplement-ary income to producer engaged in secondary and tertiary farms related to livestock business. Besides providing organic manure, livestock is important source of several value added bi-products, which are not properly processed and utilized as commercial activity, but have immense future business potential. Today livestock plays an important role in strengthening India's economy.

India is predominantly an agricultural country and about 70.00 per cent of is population depends upon agriculture only. The demographic pressure on land and sub division of land holding has jointly increased the number of uneconomic holding in the villages. These necessities the importance of subsidiary occupation like goat rearing so as to increase the income and employment to the rural people there by improves their standard of living. In the prevailing socio-economic conditions in the country where per capita land holding is hardly 0.2 Ha, goat rearing becomes an inseparable component of mixed farming system. Goat farming has been recommended as the best choice for the rural people in developing countries because of the low investment, wide adaptability, high fertility and fecundity, low feed and management needs, high feed conversion efficiency, quick pay-off and low risk involved.

The total goat population in the country is 135.17 million forming 16.02 per cent of the livestock population and 84,35,307 goat are reared in the state. It has declined by 18.8% as compared to previous Census. The female goats are 71.4% of total goats of which 31.3% are in milk goats. In milk goats are 26.41 lakh numbers and has decreased by 20.90% as compared to 2007 Census. Total population in the Amravati division is near about 11,22,053 and out of this 13,02,502 goat population exist in Washim District. (19<sup>th</sup> livestock census of year 2012)

Adoption of goat rearing practices is an individual phenomenon in all social system. It is widely recognized fact that neither flow of goat husbandry innovation of farming commonly in the sector is neither rapid or nor smooth. Goat is multifunctional animal it is known as the "poor man's cow" in India and "wet nurse" of infants in Europe which act as an economical backbone of small and agricultural labors of rural India to run their livelihood. It provides benefit to farmer who earns income through selling of resources from goat such as milk, meat, skin, fiber and manure and dependable source of income to 40% of the rural population who are below the poverty line.

Goat contributes 85 thousand MT manure per year which is 2.5 times richer in nitrogen and phosphoric acid than the cow dung. The pashmina production ranges from 100 to 145 grams per goat. It is sold between 180 to 500 dollars per kg. Kashmiri carpets are magnificent and may cost 3,000 dollars per sq. meter. The production of Pashmina in the world has increased tremendously over last decade. It has increased from 4500 tons/year in 1990 to 8000-10000 tons/year, in the year 2004 (Dubeuf, *et al.* 2004). The annual production of pashmina is more than 80 MT in India. Jammu and Kashmir alone produces 32 tons of Pashmina worth Rs 1.8 crore. The Annual Pashmina production per animal in China and Russia has been reported to be ranging from 700 grams to 1000 grams but in India it is far lower and is ranging from 100 grams in Chegu goats to about 250 grams in Changthangi goats. Goat also provides fiber "Mohair" which is straight, uneven, translucent and

more lustrous than wool. The rate of Mohair is reported approximately 21 dollars per kg. Annual removal of goats is approximately 45.00 per cent as a result goat industry contributes 101 thousand M. T. of skins annually.

The goats are well known for their adoption with different ecological systems, as they are found in Himalayas, Semi-arid and arid areas in high rainfall and high humid regions. Goats have ability to get quickly acclimatized under diversified agroclimatic conditions. It can thrive well on wide variety of thorny bushes, weeds, dry tree leaves, crop residues, vegetable wastes and certain other agricultural by-products converting them into excellent quality animal protein.

The adoption of the rearing practices in any enterprise will help in increasing the present income level. The goat farming is an important avocation in generating reasonable level of income to the goat farmers.

The socio-economic and other behavioral aspects of goat keepers might be influencing the adoption of management practices. There might be certain kind of relationship between these aspects and adoption of goat management practices in addition to the natural resources available to them for goat farming. More over, goat keepers might be facing certain constraints, particularly securing of loan to meet their financial requirement, marketing of goat and non-availability of goat health protection measures.

Studies on the economic viability of goat keeping provide audience that has the most profitable benefit cost ratio among the different animal farming practices. In short, goat keeping is a good enterprise due to following reasons.

- a. Low investment
- b. Quick onset of reproduction and high fecundity.
- c. Production of several products for family and market-meat, milk, skins and fibre.

- d. High survival under less favorable or even stress environment.
- e. Easy availability and cheaper replacement
- f. Easy to handle.

## **1.2 Importance of study**

Amongst livestock, goat (*Capra hircus*) is one of the most neglected domestic animals. The contribution of goat is especially important for rural areas, where goats are closely associated with poorest of the poor. As a small animal goat not only easily managed by family members but also require less space for housing than other farm animal. Goat keeping in India constitutes important rural business to landless labour, small farmers, marginal farmers, village artisans and peoples who are living below poverty line, due to multifold advantages like short generation interval, high rate of prolificacy, easy in management and high marketing advantage over large ruminant. Thus goat rearing appears to be cheapest against bovine so the goat is described as "poor man's cow".

## **1.3 Objectives of the study**

The present study entitled "Adoption of Goat Rearing Practices In Risod Tahsil of Washim District." was carried with the following objective.

1. To know the socio economic profile of goat keepers
2. To study the goat rearing practices followed by goat keepers
3. To study the constraints

## **1.4 Scope and limitations**

The present study is limited to only 20 goat keepers from each village selected from Risod Tahsil of Washim district. The study undertaken the feeding and management practices, constraints in adopting feeding and management practices and ways to improve the feeding and management practices for economic benefit.

## **1.5 Hypothesis**

- I. Adoption of improved goat rearing practices by goat keepers depends upon the factors such as; age, education, family size, land holding, flock size, goat keeping experience, annual income, social participation, source of information, cosmopolitans and scientific orientation.
- II. There exist a relationship between the knowledge of goat rearing management practices and the personal, socio-economic and psychological characteristics of the goat keepers.
- III. There exists a relationship between the adoption of goat rearing management practices and the personal, economical and psychological characteristics the goat keepers.

## Chapter II

### REVIEW OF LITERATURE

A comprehensive review of literature is an essential part of any scientific investigation. It helps the research workers to acquaint himself with the work done in past and the findings reported by those studies. In addition it also provides a basis for developing theoretical framework. Studies reviewed for developing a theoretical framework and other aspects have been interpreted in the relevant part of this study.

In view of this, conducted a research survey in Risod tehsil region especially on local goats. The available literature on the following parameter has been referred and reviewed pertaining to the research problems on the following lines.

2.1 Survey work (Personal, Socio economic and Psychological characteristics)

2.2 Feeding and management practices

2.3 Constraints

**2.1 Survey work** (Personal, socio-economic and Psychological characteristic.)

Pundlik (2001), revealed that, a significant relationship between age and adoption of dairy management practices.

Tripathi and Gautam (2003), revealed that majority of the respondents fed salt (53.33%) and colostrums (83.33%) and extra concentrates to lactating and pregnant goats (80.67%). Segregating sick animals from the farm, treatment of sick animal by veterinarians, leaving milk at advance stage of pregnancy, providing clean drinking water and proper cleaning of utensils were adopted by 80-100% families.

Kumar and Deoghare (2003), reported goat production system adopted by land-less households in southwestern semiarid zone of Uttar Pradesh has been examined in the paper. The linkages among various components of the production system and how goat rearing acts as a livelihood security system for the rural resource poor have been examined. The goat rearing provided an opportunity for efficient utilization of family labour. Fifty seven percent of income from goat rearing was spent for getting food for the family. The goat rearing was the first priority for 39 per cent of respondents, whereas 54 percent selected goat rearing as second in the priority of enterprises. Agricultural wages were the other major source of income earned by the male members of the family. Income from goats was lost by 15 to 29 percent due to various constraints. The share of income from goat rearing/total income was estimated to be 33.32 percent, 71.53 percent and 81.47 per cent on small, medium and large categories, respectively. Paper also identifies leverage points for the development of this enterprise.

Singh and Rai (2004), revealed that the prevailing management practices, production and marketing systems in order to suggest economically viable and socially acceptable breeding strategy. Baseline information on socio-economic status of goat rearing, management vis-à-vis production of parameters is key requirement to evaluate the goat production system.

Ubale (2005) stated that the relationship between education and adoption level of goat farmers was positively significant.

Mohan *et al.* (2009), reported factors restraining in the adoption of scientific goat farming in the adopted villages which were taken into account include lack of grazing land, lack of veterinary services in the adopted villages, non-availability of improved breeding bucks, lack of money, non – availability of medicines, lack of sweet water for drinking, non –availability of vaccination facility against contagious diseases, lack of knowledge about improved goat farming, sometimes goats

delay in releasing placenta, lack of knowledge about goat diseases, problems of pre-mature delivery/abortion, delay puberty in goats and distant goat market were perceived by the goat farmers as the factors restraining in adoption of scientific goat rearing. Similarly, provision of availability of veterinary doctor in time, grazing land, providing loan on low rate of interest from the nationalized banks, provision of availability of medicines free of cost, improved breeding bucks on low price, providing facility of vaccination against contagious diseases, providing knowledge about improved goat farming, knowledge about goat diseases, training on scientific goat rearing free of cost, arrangement of sweet water for drinking, provision of remunerative price of goats on selling and goat market and transport facility were suggested by the goat farmers as factors helping in the adoption of scientific goat rearing.

Wadkar *et al.* (2009), reported majority of the goat keepers (36.67 per cent) were from old age group followed by middle age group (32.50 per cent) and young age group (30.83 per cent).

Meena *et al.* (2011), reported 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.

Susatkar *et al.* (2011), the study was to know the socio-economic status of goat keepers. A survey was carried out by selection of 120 goat keepers from ten villages of Arvi Tahsil of Wardha district. Goat keepers were categorized on the basis of flock size viz., very small (up to 10 goats), small (upto 25 goats) medium (up to 50 goats) and large (above 50 goats). The goat keepers were of middle aged, illiterate or educated up to High School level, having small size family and their main occupation was farming goat husbandry having small

land holding or landless. Finding of this investigation indicated that maximum goat keepers were of middle age (31-50yrs), illiterate with small family size having farming and goat husbandry as their occupation and having small land holding or landless, with annual income of upto Rs. 30,000.

Yadaw and Sharma (2012), studied in 12 selected villages of three blocks of Mahasamund district of Chhattisgarh. The findings revealed that 80 per cent of the respondents had low level of adoption regarding improved feeding followed by 82.50 per cent had medium level of adoption regarding improved breeding, 76.67 per cent had medium level of adoption regarding improved management and 85 per cent had medium level of adoption about improved health care practices and on the overall basis the level of adoption regarding improved management was 58.27 per cent followed by improved breeding (55.41%), improved health care practices (52.40%) and improved feeding (29.33%). Adoption gap is highest in improved feeding (70.67%) overall adoption was noted to be 50.95 per cent and adoption gap was 49.05 per cent. In correlation coefficient of selected 17 independent variables only 7 variables i.e. occupation, land holding, knowledge about recommended goat rearing practices, cosmopolitaness, extension contact, number of animal, housing pattern showed significant contribution in the adoption of recommended goat rearing practices and in multiple regression only 4 variables i.e. annual income, credit acquisition, knowledge about recommended goat rearing practices and cosmopolitaness showed the significant contribution in the adoption of recommended goat rearing practices.

Singh *et al.* (2013), studied on adoption level of management practices, constraint to goat rearing, impact of introduced innovations on livelihood security of resource-poor households in 16 villages belonging to disadvantaged districts (Hamirpur and Mahoba) of Bundelkhand region, goats are reared by more than 75 per cent of rural households in the form of mixed farming system.

Kumar and Singh (2015), studied in two districts (Firozabad and Mainpuri) on the basis of highest goat population were selected for the study. Four blocks of each district and from each block three villages were selected, purposively, on the basis of highest goat population. Further, ten respondents, having five or more goats, were selected randomly from each village to make a sample size of 240 respondents. Majority of goat farmers were partial adopters of feeding management practices followed by high adopters and low adopters. Average adoption indexes were 65.7, 57.1, 65 and 60.91 for landless, marginal, small & semi medium and overall categories of farmers, respectively. The marginal farmers had significantly lower level of adoption than that of others. Level of adoption and land holding categories of goat farmers were found significantly associated and the direction and strength of association was positive and weak. The education level of goat farmers had positive and significant correlation with adoption index of feeding management practices. Flock size and age of farmers contributes negatively to the adoption whereas land holding contributes positively.

Sabapara and Khiradi (2015), reported that the adoption of improve goat rearing practices in Navsari district of Gujarat. Data collected from 250 owners revealed that kid management (49.23%) had highest adoption index followed by breeding (49.1%), health care (34.2%) and feeding practices (24.8%) for goat. The overall adoption index for improved practices by goat keepers was 39.33% which indicated poor adoption of improved goat rearing practices. Thus to improve the adoption of goat rearing practices in study area, extension agencies have to arrange training and demonstration of improved practices to goat keepers.

Kumar Shalu *et al.* (2015), conducted to analyze socio-economic profile of goat famers in Western Uttar Pradesh, India. The data were collected from 147 goat farmers randomly selected from Nanauta block Saharanpur district through pretested and predesigned interview schedule. Regarding socio economic profiles, most of the

goat farmers belong to the backward and schedule casts. In this study ten villages were chosen and villages found total 499 goats consisting of 301 adult goats and 198 kids. Among the total 259 female goats milch, dry and pregnant does were 53.66, 21.23 and 25.05 %, respectively. The sex ratios between male and female kids were 1:1.032. Out of total milch goats 139 goats produced only 233 kg milk and the average milk yield per goat/village was 1.66 kg. The milk production 50.66 % of it was sold out by the goat owners for their income. However, remaining milk i.e. 49 per cent was consumed by the members of families of goat owners.

Tudu and Roy (2015), the present research work was done in Nadia district in the State of West Bengal during January, 2011 to December, 2013. Results indicated that where maximum were in the age group of 20-40 years makes up (48%), followed by 0-20 years constitutes 24.66%, 40-60 years and 60 years and above age groups represents 18% and 8.66%. More than half of the goat keepers under study were illiterate (54%) and percentage of women with primary, secondary and higher secondary were 20.66, 19.33, and 6. Goat rearing is much popular amongst the landless, small marginal farmers (46%), followed by the agricultural labourers (38%), whereas, only 11.33% of house wife with part time business holders and 4.66% of service are involved in goat husbandry. Annual income of most of the goat farmers (58%) was within Rs. 15000, and 34% farmers earned medium annual income (Rs. 15000-25000), and only 8% farmers earned more than Rs. 25000 per year. Results indicated that the percentage of women facing the problems lack of grazing land and rainy season were highest represent equal 14% followed by inadequate veterinary services (12.66%), lack of house for goat (11.33%), problem in winter season (10.66), lack of feed and grasses and lack credit facilities equally constitutes (10%), problem in summer season (9.33%) whereas lack of improve breed was problem for minimum 8% cases. From this study, it can be said that goat keeping is still an occupation of poor community.

Sabapara (2016), studied to assess the socio-economic characteristics of goat rearers and marketing practices of goats in Navsari district of Gujarat. The data were collected from 25 randomly selected villages of five talukas (Tehsils) and total 250 goat owners were interviewed with specially developed interview schedule. The study revealed that majority of the goat rearers belong to middle age group (31-45 years). Majority of the respondents were landless and agricultural labourers and had goat rearing as their subsidiary occupation as a source of income. Majority of the goat rearers had an annual income less than Rs. 25,000/-. The annual income of the respondents was mainly from their main occupation and sale of goats. Most of the goat rearers sold their goats at their village round the year on the basis of physical appearance to the middle man at 7-12 months of age of kids.

Nipane *et al.* (2016), study conducted in purposively selected Bhandara district of Maharashtra state. Total 350 goat farmers selected randomly to assess the socio-economic status of the goat farmers. Eight factors were considered to study the socio-economic status and its association with the participation of the goat farmers. It was observed that majority (96.86%) of the respondents had male headed ownership, more than 85 per cent in above 30 years of age category, primary school (34%) and high school (22.28%) educated. Most of the respondents (56%) found in the higher category of annual income i.e. Rs. 10000 and above following agriculture + goat farming (34%) and labour + goat farming (33.71%) as their main occupation. More than 90 per cent respondents not participated in any social institution were landless (43.14%) and marginal farmers (39.71%). However, more than half (51.71%) per cent of the respondents had only goats in their livestock holding. The socio-economic factors viz. sex, age, education, annual income, occupation, social participation, land holding and livestock holding were positively and significantly associated with goat farming ( $P < 0.01$ ).

Bashir *et al.* (2017), the study conducted purposefully on the state level on-campus vocational and off-campus training programme on commercial goat farming conducted by All India Co-ordinated Research Project (AICRP) on Goat (Malabari Unit) in Kerala, during the financial year 2015-16. The data were collected from participants of randomly selected four state level and three off-campus training conducted by AICRP, which constituted a sample size of 243 respondents for the study. The impact of training was measured in terms of gain in knowledge. It was noticed that women participation was more in off-campus trainings (66.39%) when compared to state level on-campus trainings (9.68%). It was also observed that most of the respondents were fully satisfied with major instructors (74.49%), relevance to the trainee's need (71.60%), programme in general (69.96%). The study also revealed that 85.00 per cent of the respondents had medium to high favourable opinion regarding the training. Major suggestion given by trainees includes provision of more off-campus training preferably in their villages during summer season in the afternoon. Provision of good boarding and lodging facilities in case of on-campus trainings, provision of more reading materials and literature regarding scientific goat farming and providing more continuing learning opportunities to keep them updated with the new-technologies and changes happening in the field.

Kumar and Singh (2017), in the present study a total of 240 goat farmers (having five or more goats) of 24 village of two districts (Firozabad and Mainpuri) of the semi-arid zone of Uttar Pradesh state were interviewed. Respondents were categorized into landless (25.8%), marginal (54.2%) and small & semi-medium (20%) on the basis of landholding. Majority of goat farmers of all categories were partial adopters of housing and general management practices followed by high adopters and low adopters. Average adoption indexes of the practices were 63.6, 60.8, 66.19 and 62.62 for landless, marginal, small & semi medium and overall categories of farmers, respectively. The marginal farmers had significantly lower level of

adoption than that of others. The education level of goat farmers had positive and significant contribution in adoption of these practices whereas flock size and age of farmers contributes negatively.

Sandip Kumar Singh *et al.* (2017), studied was conducted to study the adoption level of goat farmer in scientific goat farming practices. The was collected through personal interview method with the help of pretested well structured interview schedule from 80 goat farmers in 5 adopted village of Jabalpur district of Madhya Pradesh. The recommended practices were categorized in five i.e. breeding, feeding, heath care, management and marketing.

Sandeep Kumar Singh *et al.* (2018), studied conducted on socio-economic profile and existing flock structure of goat farmers in adopted villages of Jabalpur district. Data were collected through a structured interview schedule from all goat owners of adopted village (N=80) by personal interview method. The analysis of data revealed that respondents were predominantly middle age group (32-53 yrs.), had low level of education with medium sized (4-8 members), nuclear family belonging to schedule caste/schedule tribal. The main occupation of respondents was labour. They belonged to landless with medium (Rs. 24895-148492/-) annual gross income category. The Majority of respondents had utilized Information- source was neighbors. Respondent had small flock size (< 5) i.e. 37.50% with less (< 5 year) experience (50%) in goat farming and reared goats in free-range system. Flock structure of goat in adopted village was found higher in village Silua (234 in Numbers).

Islam *et al.* (2018), the study aimed to find out the socio-economic profile of goat rearing farmers and to investigate the ongoing goat management practices in Sylhet district. One hundred and fifty goat rearing farmers from three districts of Sylhet were randomly selected for the study. The study revealed that a large number of respondent goat rearing farmers were middle- aged (56.67%) having a primary level education (36.67%) with large family size (55.33%).

Majority of the farmers (59.33%) were labour, and most of them (81.33%) were married. Two third of the farmers were in the landless group having maximum 0.02- acre land and normally started their goat-rearing business by taking a loan from NGOs (48%) or invested their own money (49.33%). Half of the goat houses were made of tin, and most of them were without Macha (a platform little above the floor).

## **2.2 Feeding and Management Practices**

Roy *et al.* (2002), observed that goats were sent out for 5-6 hours grazing daily except rams and inclement weather and supplemented with concentrates, seasonally available green and dry fodders. In housing management, the sheds had asbestos roof and kaccha floor. Goats were housed in the sheds during night particularly in winter and rainy season. Various categories of goats were housed separately according to age, sex, and physiological status viz., pregnant, dry and milch, in feeding management, goats remained on grazing for 5-6 hours daily, therefore supplementary feeding with recommended quantity of concentrate as well as seasonally available green and dry fodder were fed subject to availability.

Patil (2003), observed that majority of goats keepers (61.67%) had low level of adoption, while 25% and 13.33% had medium and high level of improved goat management practices respectively.

Mohrand-Fehr (2005), reported that clear progress in the quality of papers, now similar to those on cattle or sheep, particularly on nutritional aspects in tropical areas. Topics dealt in with goat nutrition are feeding behaviour, particularly on pastures or rangelands, feed digestibility, tree leaf or by-product utilization, effects of nutritional factors on growth, milk and hair production, while nutritional adaptation to harsh environments, underfeeding, factors influencing energy consumption, quality of goat products (milk, cheese, meat) and reproduction performance along with the connection between nutrition and pathology require more attention.

Salem and Smith (2008), reported that the principal economic output, contributing a large share of the income of farmers. Animal numbers have increased over the last two decades, driven by a rising demand for animal products and subsidized feed price (e.g. barley, maize). Side effects of this and changing climatic patterns were increasing desertification, resulting in a decline in rangeland resources, which were often insufficient to meet current demand, coupled with a fall in total feed resources due to overgrazing, ploughing of marginal land and soil erosion. Consequently, goats and sheep were facing serious nutrient shortages. These animals often depend on low quality crop residues (e.g. straws, stubbles) and expensive feed supplements.

Lahoti and Chole (2010), reported that Ambajogai taluka of Beed district of Maharashtra state with objective to know the extent of adoption of improved feeding practices by goat keepers. Hundred respondents from 10 villages of the taluka were selected randomly for collection of data. The data were collected with the help of well constructed and pretested interview schedule. The data was analyzed by using suitable statistical methods viz frequency, percentage etc. It is revealed from the study that goat keepers usually did adopt the improved feeding practices.

Thombre *et al.* (2010), studied on 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.

Sakthivel *et al.* (2011), study conducted among 140 goat farmer in Namakkal district of Tamil Nadu to ascertain the management practices followed by them. The study that most revealed that goat was

mostly housed in thatched shed with mud flooring. They were fed tree leaves, crop residues and fodder. Bleating, mounting, wagging were the sign use for heat detection and natural service followed for breeding of goat.

Sasane *et al.* (2012), study conducted in Hatkanangale, Bhudaghar and Radhanagari tahsils of Kolhapur district to investigate constraints faced by the respondents in adoption of goat rearing management practices. All the respondents completely adopted the management practices like purpose of goat breeds, semi-stalled goat rearing methods, maize jowar, bajra as forage crops, selection by heredity, parents giving 2-3 kids, breeding age of buck, culling, heat detection, natural breeding, management of newly born kids, dry and green forage, disease management of black quarter, haemorrhage septicemia, rinder pest and protection from exo-parasites. All the respondents suggested that true to type of breeds should made available, concentrate feeds should be available at the reasonable rates. Bucks of improved breeds for breeding should be made available also. They showed the requirement, of veterinary facilities for goats at local level.

Tekale *et al.* (2013), study conducted in Jalna district of Maharashtra State with the objective to know the training needs of goat keepers. The study revealed that about 35 per cent and 37 per cent of respondents' perceived training needs in goat care and management as 'most important' and 'not important' activity respectively. About 24 and 41 per cent of farmers perceived training needs in goat feeding management as 'most important' and 'important' activity respectively while about 33 and 38 per cent of farmers perceived training needs in goat breeding management as 'most important' and 'important' activity respectively. With regards to health care and disease control management, 45 and 30 per cent goat keepers felt training as most important and important respectively while about 34 and 36 per cent of farmers perceived training needs in goat marketing management as

'most important' and 'important' activity respectively. Majority of respondents preferred training of one week duration during summer season in their own village. The study concluded that, goat keepers needed training on feeding and health care management to a greater extent to improve the production potential of goats. Hence, Extension agencies should disseminate information based on training needs at the field conditions for livelihood security of the farmers.

Mandavkar *et.al* (2015), study in Raigad district of North Konkan Coastal Zone of Maharashtra to know the status of goat farming practices the knowledge and adoption level of technologies learned during training programme by the goat keepers. Out of 542 goat breeds, 73.9 per cent were local and 25.9 per cent were improved. More than 50 per cent respondents followed semistall feeding and providing concentrate feed to goats. The respondents knowledge was found enriched in the management practices like deworming of goats (60 %), feeding of colostrums to kids (60%) and use of vaccine like PPR, ET, FMD etc (56.7 %). Highest increase in adoption was found in feeding of colostrums to kids (53.3%), deworming of goats (46.7%) and use of mineral mixture and concentrate feed (36.7%). Lack of open fields was the major problem reported by most (60%) of the respondents followed by lack of timely veterinary facility at the village level (50%).

Sabapara *et al.* (2015), reported that undertaken to investigate the adoption of improve goat rearing practices in Navsari district of Gujarat. Data collected from 250 owners revealed that kid management (49.23%) had highest adoption index followed by breeding (49.1%), health care (34.2%) and feeding practices (24.8%) for goat. The overall adoption index for improved practices by goat keepers was 39.33% which indicated poor adoption of improved goat rearing practices. Thus to improve the adoption of goat rearing practices in study area, extension agencies have to arrange training and demonstration of improved practices to goat keepers.

Sangameswaran and Sunita Prasad (2016), study conducted to identify the managerial practices followed by goat keepers of Attur Block; Salem district by collecting the data from sample goat keepers of four villages randomly selected villages. The data were analysed statistically and discussed. The study revealed that majority of the goat keepers were not following the scientific practices of cutting and disinfecting navel cord of kids. Majority of the goat keepers surveyed was not providing concentrates to their goats and were using their farm by-products as the feed. From the study it was clear that there was knowledge gap among the goat keepers about scientific management practices of goats. Majority of the farmers were not following the practice of deworming and vaccination. Majority of the farmers was not availing any health care and preventive services for their goats.

Shyam and Narpat (2016), study on undertaken to assess the adoption level of improved goat rearing practices and the constraints faced in adoption of improved practices among goat farmers in Namakkal district of Tamil Nadu. The study revealed that high adoption was noticed in feeding colostrum to new born kids (99.29 per cent), deworming of young kids (90.00 per cent), identifying the animals in heat (90.00 per cent) and low adoption was in providing mineral blocks (3.57 per cent), feeding crushed prosopsis, tamarind seeds neem leaves (3.57 per cent), insurance of animals (1.43 per cent) and maintenance of records (0.0 per cent). The major constraints perceived by the goat farmers were exploitation by middlemen (88.57 per cent), complicated loan getting / sanctioning procedure (87.86 per cent), scarcity of green fodder (78.57 per cent), diminishing grazing areas (77.86 per cent).

Sandhu *et al.* (2017), reported that the feeding management practices adopted by goat farmers in South-West Punjab (Bathinda, Moga and Ferozepur districts). Information was collected through personal interview (multistage stratified sampling procedure) from 90 goat farmers (30 from each district). Majority of the goat keepers fed

their animals on common property resources (85.56%) followed by cultivated fodder (13.33%) and purchased fodder (1.11%). Large chunk of goat farmers depends only on grazing (77.78%) for feeding their animals followed by grazing-cum-stall feeding (14.44%) and stallfeeding (zero grazing) alone (7.78%). However, in Bathinda significantly ( $p < 0.05$ ) larger number of goat farmers are cultivating fodder (26.67%) and practicing only stall-feeding (20.00%). Small fraction of goat farmers (33.33%) offer grain/concentrate and majority (74.07%) of them offer residual grains occasionally. Majority of the goat farmers (64.44%) don't follow the practice of conserving fodder while in Bathinda district (56.67%) significantly ( $p < 0.01$ ) higher number of farmers conserved fodder. Majority of the goat farmers found inadequate feeding of concentrate (80.00%), ignorance about balanced feeding (86.67%), non availability of mineral mixture (85.56%), non availability of cultivated fodder (85.56%), lack of initiative on the farmers part to arrange fodder crops due to small landholdings/no landholding (81.11%) and non-availability of hay (80.00%) as main constraints. As goat farmers had overall lower (34.44%) adoption of scientific feeding practices it was concluded that interventions of professionals are required to provide trainings and form societies/self-help groups to promote improved feeding practices especially balanced feeding and fodder conservation.

Salahuddin, Md *et al.* (2017), study conducted in four district of northern region of Bangladesh, namely Bogra, Sirajgani, Gaibandha and Rangpur. Middle aged people were more interested in regional goat both traditional (53.75%) and commercial (60%) farming system. Most of the traditional farming farmers housed were earthen wall (76.25%). Brick wall (50%) and slatted floor (66.67%) were practice more commercial farming. Hundred per cent farmers of commercial farming system constructed their farm away from own residence and (77.25%) traditional farming farmers house were attached with their own house without maintaining proper direction and ventilation system. 85% farmers of traditional approaches provided roadside and

fallow land grasses by tethering feeding system and all commercial farming farmers cultivated fodder and fed by cut and carry. Most of the traditional farming farmers (85%) did not provide any kind of concentrate mixture to their goat.

### **2.3 Constraints**

Patil (2003), revealed that majority of goat keepers reported the constraints as seasonal variation in market (80.00%) followed by butchers and middlemen create chain hence low price for goat (70.85%) and lack of knowledge of improved breeds of goat (37.50%).

Gujar and Pathodiya (2008), reported that constraints perceived by goat rearers were recorded by a random sample survey of 360 goat rearers in districts Udaipur, Rajasamand, Chittorgarh and Bhilwara of Mewar region of southern Rajasthan in India. Rank based quotient (RBQ) value for each constraint was calculated at district levels. Simultaneously, pooled RBQ values of different constraints were also estimated. The gravity of the constraints was judged through the magnitude of its RBQ values. The lack of grazing area was found to be most serious constraint faced by goat rearers followed by lack of improve breeding buck, lack of credit facility, lack of knowledge about scientific goat rearing practices and illiteracy.

Gopala *et al.* (2010), the study to explore the constraints in goat rearing in Bidar district of Karnataka in India. 70 respondents from six Livestock Interest Groups (LIGs), which have undertaken Bidri goat rearing as an income generating activity under DBT (Department of Biotechnology, Ministry of Science and Technology, Government of India, New Delhi) funded project and who had more than two years of experience in goat rearing were selected from six villages in four Talukas of Bidar district. The study revealed that majority of the respondents were facing the problems with respect to availability of fodder during summer season, disease problems, wild animal's attacks on goats, problem of ticks, housing problem in rainy and winter season. Majority (90%) of the respondents had said that they had constraint of

fodder during summer season. Majority (81.42%) of the respondents had said that they had problem of wild animal's attacks on goats as the constraint.

Tanwar (2011), study undertaken to investigate the constraints faced by goat farmers in semi arid part of Rajasthan. Data collected from 240 households revealed that feeding was the main constraint faced by 78.75% goat farmers followed by marketing, health and breeding by 77.50, 74.25 and 71.11% farmers, respectively. The main constraint regarding feeding management was lack of knowledge about balanced feeding, high cost of feeds and fodder, lack of irrigation facilities, non availability of green fodder, lack of knowledge about importance of mineral mixture, and shrinking grazing land. Regarding breeding, main constraints were inadequate availability of breeding buck, lack of knowledge about breeding practices and indiscriminate breeding practice. With respect to health care the major constraints were lack of veterinary services in villages, high cost of treatment, ignorance about importance of deworming, lack of knowledge about common diseases and vaccination programme not carried out by any agency. With respect of marketing, the main constraints were lack of marketing infrastructure, middleman not fetching remunerative price to male kids, unorganized goat owners and not even a single agency helped in marketing. Considering above facts, it is suggested that appropriate strategy might be formulated for the development of goat farming and also for the goat farmers.

Narmatha *et al.* (2013), study that high adoption was noticed in feeding colostrum to new born kids (99.29 per cent), deworming of young kids (90.00 per cent), identifying the animals in heat (90.00 per cent) and low adoption was in providing mineral blocks (3.57 per cent), feeding crushed prosopsis, tamarind seeds neem leaves (3.57 per cent), insurance of animals (1.43 per cent) and maintenance of records (0.0 per cent). The major constraints perceived by the goat farmers were exploitation by middlemen (88.57 per cent), complicated loan

getting/sanctioning procedure (87.86 per cent), scarcity of green fodder (78.57 per cent), diminishing grazing areas (77.86 per cent).

Samuel and Dugma (2013), studied in around Jimma, South Western of Ethiopia, to assess goat production and management systems by questionnaire survey. The most important husbandry practices studied include mortality, rearing, housing, feeds and feeding, productivity, disease and disease control, castration and some problems facing goat production. The flock structure of goats comprised 40%, 14.75%, 41.7% and 2.45% does, bucks, kids and castrates respectively. The ratio of male to female was 1 to 2.8, respectively. The main source of feed is natural pasture supplemented with crop residues and concentrates. The most common diseases reported include pneumonia, liver fluke, diarrhea, GIT worm and foot rote respectively according to importance. The most constraints for goat production, in order of importance, were diseases and parasites, feed shortage, labor scarcity, predator, losses and land shortage.

Jana *et al.* (2014), study in order to analyse goat rearing practices prevailing in the district and to identify the constraint in goat farming through collection of data from 150 respondents from Burdwan district. The data pertaining to reasons for taking up goat farming, goat rearing practices being followed and constraints being the faced were collected with the help of semi-structured interview schedule after ensuring it's reliability and validity. Getting remunerative price from the each animal reared on low or no cost input was the most important (81.78 MPS) reason for rearing Bengal goat. Most of the goat keepers (90%) reared there animal following semi-intensive system in Kachcha houses (69.33%) which constructed separately with locally available low-cost material. Floor of goat shade in most of the cases (56.67%) was earthen and roof had traditional that (56.67%). Almost half of the respondents (51.33%) maintain there goats by allowing grazing for 4-6 hours per day and offering vegetable waste, vegetable and crop residues along with tree leaves. Most of the goat farmers (57.33%)

vaccinated their goats against major diseases like goat pox, peste des ruminant and foot and mouth disease. Lack of pure breed buck (Rank I), high incidence of disease (Rank II), and lack of capital to start goat farm (Rank III) were perceived to be the major constraints by the goat rearers.

Vimal Rajkumar and Kavitha (2014), the study carried out to analyse the constraints perceived by the farm women in goat farming in Erode District of Tamilnadu. A total 120 farm women having actively involved in goat rearing were randomly selected from the study area for the study. The data was collected through a semi-structured interview schedule containing a list of constraints and the farm women were asked to rank them. The data were tabulated and Garretts ranking technique was adopted to analyse the constraint as perceived by the respondent. The study revealed that lack of grazing land, inadequate availability of breeding buck, lack of veterinary services at the door step at time of emergency (lack of veterinary aid) and middleman not providing remunerative price to kid were the main constraint in the domain of feeding, breeding, health care and marketing.

Koli and Koli (2016), reported problems faced by goat keepers in adoption of goat farming technology were lack of knowledge regarding improved breeds, non-availability of improved breeds, lack of training centres, lack of grazing land, high mortality in kids, lack of markets and seasonal variation in goat prices, non-availability of credit facilities, high cost and non-availability of concentrate mixtures, non-availability of veterinary hospitals and doctors near to villages were the major problems faced by goat keepers. The study also revealed that majority of the respondent goat keepers had medium level of adoption on selected goat farming practices.

Sorathiya *et al.* (2016) studied to document various constraints faced by Ahir community goat keepers by selecting 300 goat keepers from Valsad and Navsari districts of south Gujarat using multistage random sampling technique. The data was collected by interview

schedule on five point agreement scale. The analyzed data revealed nine management related, ten socio-economic and five region specific constraints. Among them high feed cost and more illness and mortality emerged as the most important management related constraints. Lack of credit facility and high wage rate emerged as top socio-economic constraints. The region specific constraints identified were heavy rainfall condition and floods/natural disasters. It was suggested that the above said most important constraints must be considered for developing remedial package for profitable goat farming in the study area.

Kumawat *et al.* (2017) the studied conducted in Jaipur district of Rajasthan, to find out the constraints faced by farmers in goat rearing practices. For this, fifty farmers were selected and information was collected with the help of structured interview schedule and data was analyzed with the appropriate statistical tools as; mean, per cent score and chi square were drawn from it.

## **Chapter III**

### **MATERIAL AND METHODS**

The present investigation entitled “Adoption of goat rearing practices in Risod tahsil of Washim district” was undertaken during the year 2018-19 by collecting the data from different goat keepers in Risod tahsil. This chapter contains the tools and techniques employed for data collection. The sampling procedure adopted as well as the devices used for analysis of data are also explained. The work of collection of data on feeding and management practices adopted by goat keepers in Risod tahsil was carried out by developing a proforma questionnaire. The methodology followed has been explained under.

#### **3.1 Research site**

In the present investigation, Risod tahsil in Washim district was purposively selected for the study purpose. As per the 2012 census, total goat population in Washim district is near about 1,32,502 and out of this 16,761 goat population is Risod tahsil. The six villages are selected from tahsil on the basis of highest goat population for the study, with the help of the list of the goat population obtained from the Animal Husbandry and Veterinary officers of concerned Tahsil. Thus total 20 goat owners selected from each village. Hence total 120 goat owners are selected for study.

##### **3.1.1. Geographical location**

Washim is located in the middle east of Vidharbha region of Maharashtra and is a part of the Amravati division. Washim has been carved out from Akola district on 1 July 1998. Administratively, the district is divided in six talukas– Washim, Risod, Malegaon, Mangrulpir, Karanja and Manora. Akola lies to its north, Amravati lies to its north-east, Hingoli lies to its south, Buldhana lies to its west, and Yavatmal lies to its east. Washim lies in between 20° 05'58.90" N latitudes and east longitude 77° 08'11.82" E and altitude 600M MSL.

There is a state highway connecting Hingoli, Amravati, Washim, Akola, Pune and Nanded. It also has a railway junction. By railway is connected to Washim, Purna, Nanded and Khandwa. Washim district has a strong history. It is specially famous for its Balaji Temple. Vatsagulm, today known as Washim, was once the capital of a branch of the Vakatak kingdom. The name Vatsagulm is said to have been derived from the name of Sage Vatsa. KrishiVigyan Kendra, Karada is located in Washim district. The operational area of this KrishiVigyan Kendra comes under the Vidarbha Region of Maharashtra which is dry Zone established to cater the Knowledge and Technological needs of the farmers in the District. (District irrigation plan of Washim District, Government of Maharashtra.)

### **3.1.2 Area and Population**

The district has a geographical area of 5196 sq.km. in which forest covers 330.95 sq. km. area and 280.57 sq. km. of land is covered by agriculture land. According to the Census of population of 2011, Washim district has a total population of 11.97 lakh of which 6,20,302 are males while 57,6,858 are females. The total population of Washim is 1.06% of total population of Maharashtra state. The sex ratio is 926 females per thousand of males as against the state average of 925 females. Out this total population, 2,29,462 are SC category persons and 80,471 are ST category persons. For administrative convenience, the district is divided into 6 Tehsils, namely-1) Washim, 2) Risod, 3) Malegaon, 4) Mangrulpir, 5) Manora and 6) Karanja. District Collector's office is located in Washim town. There are four Nagar Parishad, six Panchayat Samitis and seven hundred and eighty nine total villages and four towns.

Washim is one of the least urbanized districts having less than one-fifth of its population in urban areas whereas more than two-fifth of the State's population lives in urban areas. The literacy rate of Washim district is 83.2 percent. The economy of district is primarily dependent

on agricultural sector more than 80 percent persons are engaged in agricultural activity. (Anonymous 2012- 2017).

### **3.1.3 Soil**

The entire district is occupied by lava flows which are popularly known as Deccan Trap Basalt and major part of the district is occupied area 50.9 ha (9.91%) of medium black soil of 25-50 cm depth occurring in the plains in entire south western, north eastern and northern parts of the district, whereas the shallow black soil area 223.8 ha (43.55%) of 7.5 to 25 cm depth occur in restricted hilly parts of the district in central elongated part and the northern peripheral part. And Deep black soils 239.2 ha (46.54%). (Anonymous 2012- 2017).

### **3.1.4. Rivers**

This is one of the important sources of irrigation in Washim district. River Penganga is the main river of the district. It flows through the Tehsil of Risod. Later it flows through the boundary of Washim and Hingoli districts. River Kas is the main tributary of Penganga. River Kas meets Penganga about 1 km from the village of Shelgaon Rajgure. River Arunavati and its tributaries originates in the Tehsil of Washim and them flows through the tehsils of Mangrulpir and Manora into the district of Yavatmal. River Katepurna originates in the hilly areas of the district and flows northwards through the tehsil of Malegaon and enters the Akola district. (Anonymous 2012- 2017)

### **3.1.5. Climate and Rainfall**

Washim District has an extremity in climatic situation. It has very cold winter and Extreme hot summer with unevenly distributed rainfall. The district forms part of Deccan Plateau with slope towards southeast from Sahayadri hills and has a varied topography consisting of hills, plains and undulating topography near riverbanks. The district forms a part of Godavari and Tapi basins. The Balaghat Plateau comprises of Low-lying hills forming water divide. Many of the tributaries to Godavari and Tapi rivers originate from the Balaghat Plateau.

Washim District falls in two agro ecological zone type viz Assured rainfall zone (ACZ-7) and Moderate Rainfall Zone (ACZ-8). Risod and Karanja falls under Assured rainfall zone (ACZ-7) and

Washim, Malegaon, Manora and Mangrulpir falls under Moderate Rainfall Zone (ACZ-8). Annual rainfall of district is Annual 965.3 mm 48.6 rainy days. Normal rainfall and Normal Rainy days (number) of SW monsoon (June-September), NE Monsoon (October-December), Winter (January-February), Summer (March-May) is 848.6 mm, & 41.3 days, 75.4mm & 4.0 days, 26.7 & 2.1 days, 14.6 & 1.2 days respectively. (Anonymous 2012- 2017).

### 3.1.6. Land utilization pattern of Washim district

Sr.No.	Perticular	Area ha
1	Geographical Area	513124
2	Forest area	37068
3	Land under non agricultural use	7835
4	Cultivable waste land	16063
5	Permanent pastures	8003
6	Land under miscellaneous tree crops & groves	-
7	Current fallows	10908
8	Other fallows	8572
9	Net sown area	387667
10	Gross cropped area	423430

(Source ): Anonymous 2012- 2017).

### 3.1.7 Cropping pattern

The details of cropping pattern of Washim district for the year 2012-2013 to 2016-17 is given below.

Sr.No.	Crops	Area(ha)
1	Soyabean	62504
2	Tur	11805
3	Jawar	982
4	Cotton	458
5	Mung	595
6	Udid	706

(Source: (Anonymous 2012- 2017)

### **3.1.8. Transport and communication facilities**

Washim is connected by State Highways to all the important cities of Maharashtra. It was connected to the broad gauge railway network in 2008 when tracks were extended from Purna to Akola. Post offices and telephone facilities i.e. landline are available in almost all the villages. The Radio, television and internet means of communication are also spreading in the district.

### **3.1.9. Livestock**

According to census 2012, the total livestock population in Washim District, there are, 2.01% pigs, 26.40% goats, 12.71% sheeps, 37.28% indigenous cow and Buffalo 21.23%.

### **3.1.10. Other facilities**

The institutes i.e. primary schools, secondary schools, hospitals, nationalized banks, credit co-operatives, cold storage facilities, co-operative dairy societies, lift irrigation societies, Nagari Sahakari path sanstha, Mahila mandals, Bachat gat, fair price shops, medical stores and other such mandals are operating in the district.

### **3.2. Source of data**

For testing the hypothesis and achieving other objectives of the study, different types of data and responses from Goat Keepers were required. Accordingly the data were collected from the 20 Goat Keepers from each village who were the source of data for the study. Information obtained from them in response to the questions were collected through questionnaire specially designed for the present study.

### **3.3 Sampling plan**

The Washim district consists of six tahsils. Among these tahsils only one tahsil i.e. Risod are purposively selected as area for

the present investigation. Goat population of Risod tahsil is 16,761. (19<sup>th</sup> Livestock Census 2012).

### **3.4. Selection of the villages**

Six villages will be selected on the basis of the highest goat population. From each village 20 goat keepers will be selected. Hence, total number of goat owners will be 120.

### **3.5. Selection of the goat keepers**

A list of farmers who possess goat from each selected village was prepared with the help of Gramsevak, Agril. Assistant and Sarpanch of concerned villages. From each selected village 20 goat keepers were selected randomly among which very small (1-10 goat), small (11-25 goats), medium (26-50 goats), large (above 50 goats). Thus, the number of sample of goat keepers was selected randomly to make up total number of 120 goat keepers. The data from 120 goat keepers were collected by contacting them personally with the help of structured interview schedule. The details of villages wise number of goat keepers from selected villages.

**Table 1 Villages wise number of goat keepers selected for study**

<b>Sr. No.</b>	<b>Name of Village</b>	<b>Goat keepers</b>
1	Keshavnagar	20
2	Chikhali	20
3	Aasegaon (pen)	20
4	Deulgaon (BK)	20
5	Pedgaon	20
6	Kavatha	20
<b>Total</b>		<b>120</b>

### **3.6. Preparation of interview schedule**

Interview schedule consisting of relevant questions related with the objectives of the study was prepared. Necessary care was taken to keep the language simple so as to get desired responses from the

respondents. The interview schedule was developed in English language and then translated into Marathi for local use.

The interview schedule contained questions related to personal, psychological and socio-economical characteristics of the goat keepers in the first part, the questions about the knowledge and adoption of goat rearing practices were asked in the second part and constraints faced and suggestion made by goat keepers were asked in third part of the schedule.

### **3.7 Collection of data**

The data were collected in a face to face situation by contacting personally the selected goat keepers. The goat keepers were contacted on the grazing lands or at their homes as per their convenience. For easy and quick approach to the goat keepers, the help of Grampanchayat officials was sought. Before actual seeking information, goat keepers were introduced with the objectives of the study. The pre-tested interview schedule was then used for data collection. Thus the data were collected from 120 respondents from the selected villages.

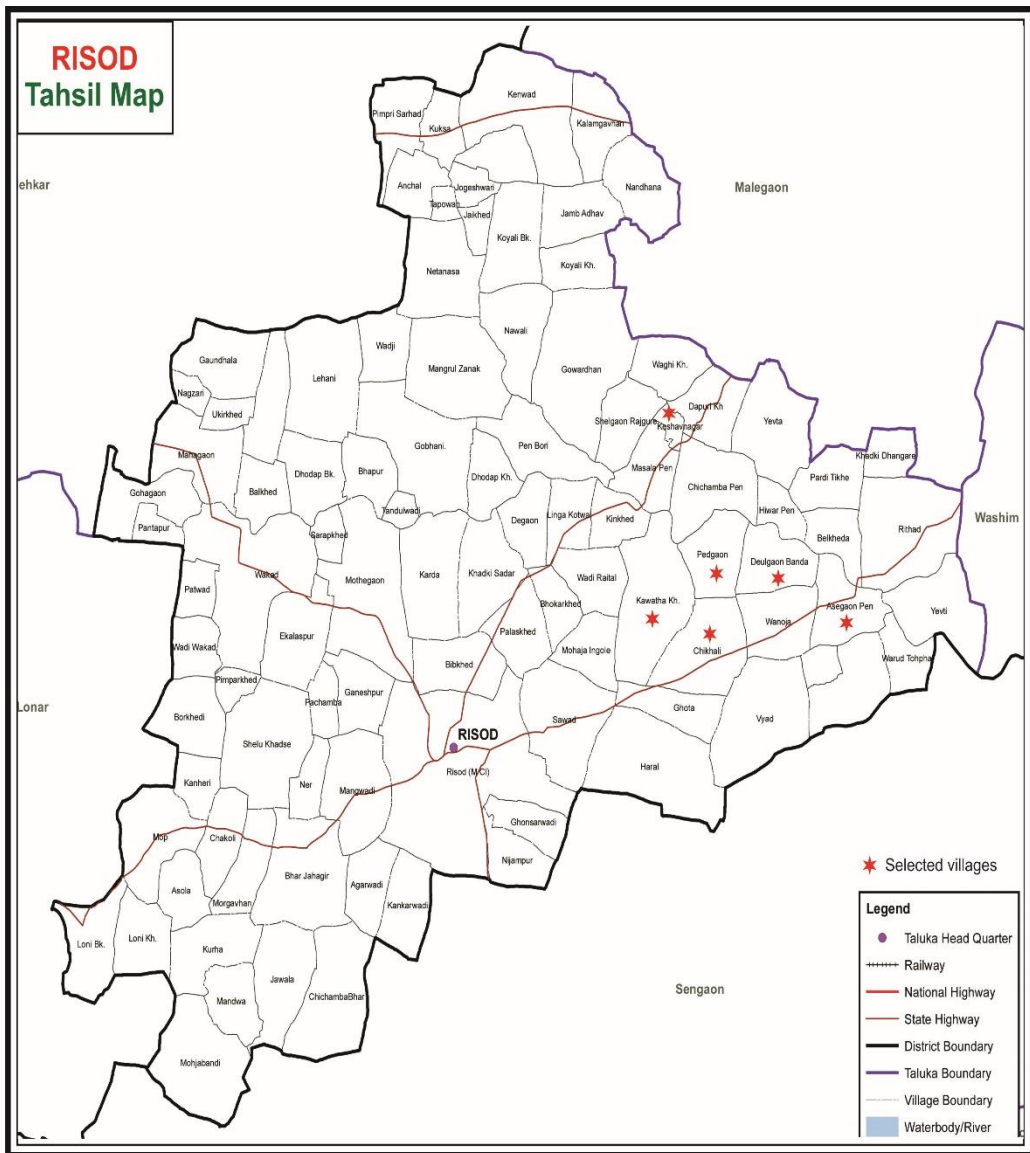
### **3.8 Variables selected for the study with their empirical measurements**

#### **3.8.1 Independent variables**

The independent variables selected for the present study and their operational definition, scoring and categorization have been discussed below.

##### **3.8.1.1 Age**

Age in the present study has been considered as a chronological age of the respondents at the time of interview expressed in terms of completed years.



**Plate 1. Map of Risod tehsil**



**Plate 2: Collection of information from goat keeper with the help of personal interaction**

<b>Sr. No.</b>	<b>Particulars</b>
	<b>Age groups of goat keeper.</b>
1	Upto 30 years
2	31 to 50 years
3	Above 50 years

### **3.8.1.2 Education**

Education in the present study has been considered the level of formal education of an individual goat keeper.

<b>Sr. No.</b>	<b>Particulars</b>
	<b>Education</b>
1	Illiterate – No schooling
2	Primary - 1st to 7th Std.
3	Middle & above - 8 <sup>th</sup> to 12th Std.

### 3.8.1.3 Family size

It was operationalized as the total number of members living together in a family of goat keeper under a common roof having blood relations and sharing common food. Adopted members residing permanently with family were also included. Accordingly to the present concept of the family size, the respondents were grouped into three groups as following.

<b>Sr. No.</b>	<b>Particulars</b>
	<b>Family size</b>
1	Small – (Upto 3 members)
2	Medium – ( 4 to 6 members)
3	Large – (more than 6 members)

### 3.8.1.4 Land holding

It refers to the number of hectares of land possessed by an individual for cultivation of crop. In the present investigation the size of land holding was measured in hectares of land possessed by the respondents. Respondents according to land holding were categories as follows on the basis of the Maharashtra Government norms:

<b>Sr. No.</b>	<b>Particulars</b>
	<b>Land holding (ha)</b>
1	Landless- (having no land)
2	Marginal - (upto 1.0 ha)
3	Small - (1.1 ha to 2.0 ha)
4	Large - (more than 2.0 ha)

### 3.8.1.5 Flock size

It refers to total number of goat possessed by goat keeper. On the basis of number of goat reared by goat keepers having minimum 3 and above goats, were grouped in four categories.

Category	No. of goat
Very small	1-10 goats
Small	11-25 goats
Medium	26-50 goats
Large	Above 50 goats

### 3.8.2 Dependent variable

The dependent variable is the variable which varies with the independent variables. For the present study following are the dependent variables.

#### 3.8.2.1 Knowledge

It was the body of information possessed by a goat keeper in respect of improved management practices of goat keeping. Score 2 was assigned for knowing the practice perfectly, score 1 was assigned for knowing the practice partially and score zero was assigned for total lack of knowledge about management practices. According to the total score obtained respondent were classified into three categories according to range.

Sr. No.	Category	Score rang
1	Low level of knowledge	Score up to 99
2	Medium level of knowledge	Score 100 to 130
3	High level of knowledge	131 and above

#### 3.8.2.2. Adoption

It was operationalized as the continued use of management practices of goat by the respondents for at least two years. Score 2 was assigned for each of the practices if it was fully adopted, if it was

partially adopted score 1 was given and Zero score was assigned if it was not adopted. According to the total score obtained respondent were classified into three categories according to range.

Sr. No.	Category	Score rang
1	Low level of knowledge	Score up to 77
2	Medium level of knowledge	Score 78 to 107
3	High level of knowledge	108 and above

### 1. Table 2 Socio-economic profile of goat keepers

Sr. No.	Particulars	Villages					
		1	2	3	4	5	6
<b>A</b>	<b>Age groups of goat keeper.</b>						
1	Upto 30 years						
2	31 to 50 years						
3	Above 50 years						
<b>B</b>	<b>Education</b>						
1	Illiterate						
2	Primary						
3	Middle & above						
<b>C</b>	<b>Family size</b>						
1	Small (upto 3 members)						
2	Medium (4-6 members)						
3	Large (more than 6 members)						
<b>D</b>	<b>Land holding (ha)</b>						
1	Landless (having no land)						
2	Marginal (upto 1.0 ha)						
3	Small (1.1 ha to 2.0 ha)						
4	Large (more than 2.0 ha)						

(Note: Village 1, 2, 3, 4, 5 and 6 represents Keshavnagar, Chikhali, Aasegaon (pen), Deulgaon (BK), Pedgaon and Kavatha respectively.)

### 2. Goat rearing practices

1. Grazing time and area covered
2. Rate and type of feeding roughages, green dry and concentrate to goat
3. Various management practices followed viz., watering, housing, flushing and health care of goats

4. Practices about disposal of faeces i.e. goat manure collected at farm and field

### **3. Constraints of analysis**

1. It was revealed from the study that lack of pure breed buck was the most important situation constraint. The second most important problem perceived by the respondents was high incidence of diseases. This was followed by the problem of lack of capital to start goat farm. Similar finding was also reported by *Gujar and Pathodiya (2008)* in Rajasthan.
2. Lack of knowledge about scientific goat rearing, shortage of space for farming, non-availability of green fodder and shrinkage of grazing land is fourth constraint faced by goat keepers. Inbreeding was another problem. It might be due to use of limited number of bucks over large population for a long period.

### **4. Constraints faced by goat keepers**

- High incidence of disease
- Lack of pure breed buck
- Inbreeding
- Non-availability of green fodder
- Shrinkage of grazing land
- Lack of knowledge about goat rearing
- Attack of predators at 1st stage of kid's life
- Lack of space for housing
- Complaints by neighbours
- Lack of capital to start a goat farm

### **3.9. Statistical methods used for data analysis**

The data collected from the respondents were processed and tabulated using statistical tools. Mean, standard deviation and percentages were worked out wherever needed. The statistical testes used in the present study for analysis of data, are given below.

### 3.9.1. Frequency and percentage

Frequency and percentage were used for making simple comparisons. The frequency of the particular category was multiplied by hundred and divided by total number of respondents to get percentage.

### 3.9.2. Mean

Mean of sample was calculated by summing all the individual score and dividing it by number of cases.

$$X = \frac{\sum X}{N}$$

Where,

X = Arithmetic mean

$\sum X$  = Sum of respondent's score

N = Number of cases

## **Chapter IV**

# **RESULTS AND DISCUSSION**

Adoption of improved scientific practices in rearing and management of goat leads to increase in milk production and thereby raise the living standard of the goat owners. Dairy development in India is recognized as an effective instrument for improving the economic condition of rural families. But several constraints or problems are faced by livestock owners in relation with feeding of animals. However, no planned study has so far been conducted to analyze the strategy of feeding and management of goat. The investigation on “Adoption of goat rearing practices in Risod tahsil of Washim district” was carried out. The result of this investigation are presented and discussed in the light of research work conducted so far, in this chapter under following heads.

4.1 The personal, socio economic and profile of the goat keepers.

4.2 The extent of adoption of goat rearing management practices by the goat keepers.

4.3 Constraints faced by goat keepers in adoption goat rearing practices.

**4.1 The personal and socio economic profile of the goat keepers.**

**4.1.1 Profile of goat keepers pertaining to personal and social economical characteristics:**

### **I. Independent variable**

Different personal, socio-economic characters of the goat keepers were studied. These were age, education, family size, occupation, source of information, flock size and land holding are presented in table 3 and related fig.

#### **A. Age**

Age is important factor, which determines the role of farmers in adoption of improved practices. It was observed from Table 3 and depicted in fig 1 that the majority (49.16 per cent) of the goat keepers

were from 'middle' age group of 31 to 50 years, followed by 30.00 per

**Table 3. Distribution of goat keepers according to socio economic Profile**

Sr. No.	Category	Very small (n=30)	Small (n=30)	Medium (n=30)	Large (n=30)	Total (n=120)
<b>A. Age</b>						
1.	Young (Upto 30 Yrs)	9 (30.00)	7 (23.33)	6 (20.00)	3 (10.00)	25 (20.84)
2.	Middle (31-50 Yrs)	11 (36.66)	16 (53.33)	17 (56.66)	15 (50.00)	59 (49.16)
3.	Old (Above 50 Yrs)	10 (33.33)	7 (23.33)	7 (23.33)	12 (40.00)	36 (30.00)
	Total	30 (100.00)	30 (100.00)	30 (100.00)	30 (100.00)	120 (100.00)
<b>B. Education</b>						
1.	Illiterate	11 (36.66)	12 (40.00)	9 (30.00)	16 (53.33)	47 (39.16)
2.	Primary (1-7 <sup>th</sup> Std.)	9 (30.00)	7 (23.33)	14 (46.67)	6 (20.00)	36 (30.00)
3.	Middle (Above 8-12 <sup>th</sup> Std.)	10 (33.33)	11 (36.66)	7 (23.33)	8 (26.67)	37 (30.84)
	Total	30 (100.00)	30 (100.00)	30 (100.00)	30 (100.00)	120 (100.00)
<b>C. Family size</b>						
1.	Small size (Up to 3 members)	14 (46.67)	17 (56.66)	9 (30.00)	12 (40.00)	52 (43.34)
	Medium (4-6 member)	7 (23.33)	8 (26.67)	5 (16.67)	10 (33.33)	30 (25.00)
2.	Large size (Above 6 members)	9 (30.00)	5 (16.67)	16 (53.33)	8 (26.67)	38 (31.66)
	Total	30 (100.00)	30 (100.00)	30 (100.00)	30 (100.00)	120 (100.00)
<b>D. Land holding</b>						
1.	Landless	14 (46.67)	9 (30.00)	7 (23.33)	5 (16.67)	35 (29.18)
2.	Marginal (up to 1.0 ha)	7 (23.33)	13 (43.33)	5 (16.67)	10 (33.33)	35 (29.16)
3.	Small (1.1 to 2.0 ha)	6 (20.00)	3 (10.00)	14 (46.67)	7 (23.33)	30 (25.00)
4.	Large (above 2.0 ha)	3 (10.00)	5 (16.67)	4 (13.33)	8 (26.67)	20 (16.66)
	Total	30 (100.00)	30 (100.00)	30 (100.00)	30 (100.00)	120 (100.00)

(Figures in parenthesis indicate percentage of total)

cent of goat keepers belonging to 'old' age group of 50 years and above. It was observed from the table 3 and depicted in fig 1 that 20.84 per cent of goat keepers belonging to 'young' age group of up to 30 years. As more goat keepers are belonged to middle age category, the probable reason might be that, the middle age persons having more

awareness about improved goat rearing management practices as compared to old and young goat keepers. The problem of less experience and lack of knowledge regarding new goat rearing management practices which may be faced by the young and old age groups respectively can be avoided up to some extent. As there are more information obtained from this middle age group, findings will be representative of the all age categories. The less number of young aged goat keepers might be lack of interest in goat rearing.

Wadkar *et al.* (2009), reported majority of the goat keepers (36.67 per cent) were from old age group followed by middle age group (32.50 per cent) and young age group (30.83 per cent).

Tudu and Roy (2015), results indicated that where maximum were in the age group of 20-40 years makes up (48%), followed by 0-20 years constitutes 24.66%, 40-60 years and 60 years and above age groups represents 18% and 8.66%.

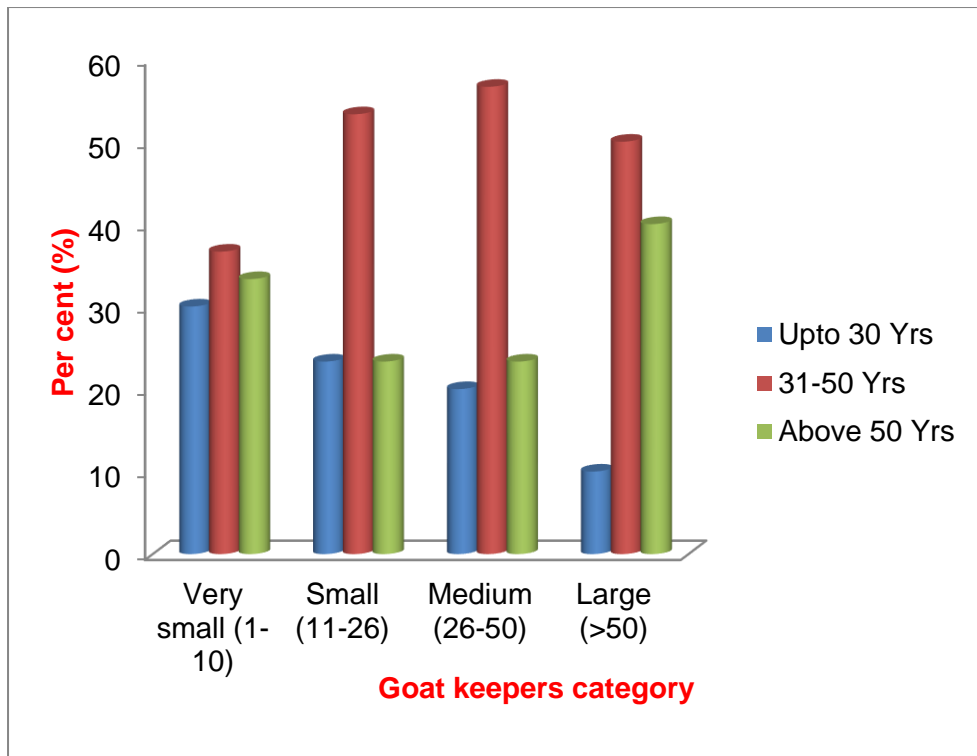
## **B. Education**

Formal education enhances the problem solving capacities of an individual. It helps to broaden the outlook of a person and is important in determining his attitude towards the development. The information regarding the formal education received by the goat keepers was collected, tabulated and the results are presented in the Table 3 and depicted in fig 2.

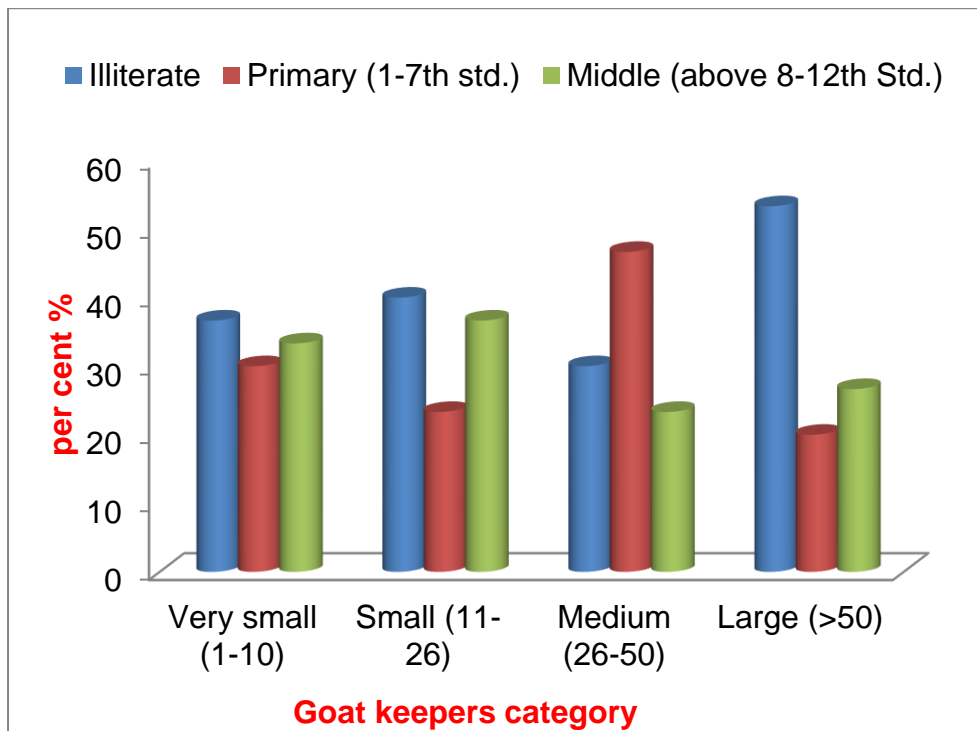
It was revealed that majority 39.16 per cent of the goat keepers were illiterate level, followed by 30.84 per cent educated middle (above 8-12<sup>th</sup> Std.) level and 30.00 per cent goat keepers were primary (1-7<sup>th</sup> Std.) level of educated.

The results shows that goat rearing was preferred by illiterate and middle group of educated people.

The similar result found in Tudu and Roy (2015), who reported more than half of the goat keepers under study were illiterate (54%) and percentage of women with primary, secondary and higher secondary were 20.66, 19.33, and 6.00 per cent.



**Fig:1 Classification of goat keepers on the basis of age group**



**Fig 2. Classification of goat keepers according to education level**

### **C. Family size**

The information pertaining to the size of family of the goat keepers was collected, tabulated and analysed and results are presented in the table 3 and depicted in fig 3. It was observed that the majority (43.34 per cent) of the goat keepers had 'small' family size of up to 3 members, followed by (31.66 per cent) of the goat keepers had 'large' family size of above 6 members and (25.00 per cent) of the goat keepers had 'medium' family size up to 4-6 member. The average family size of the goat keepers is 4 members. This reason might be due to social changes and love for keeping individuality of new generation rather than to live together in joint family. In medium size family each and every member spare there proper time which is needed for goat rearing management.

Thus, it can be inferred that, large proportion of the goat keepers belonged to small sized family.

Islam *et al.* (2018), the study reported that a large number of respondent goat rearing farmers were middle- aged (56.67%) having a primary level education (36.67%) with large family size (55.33%).

### **D. Land holding**

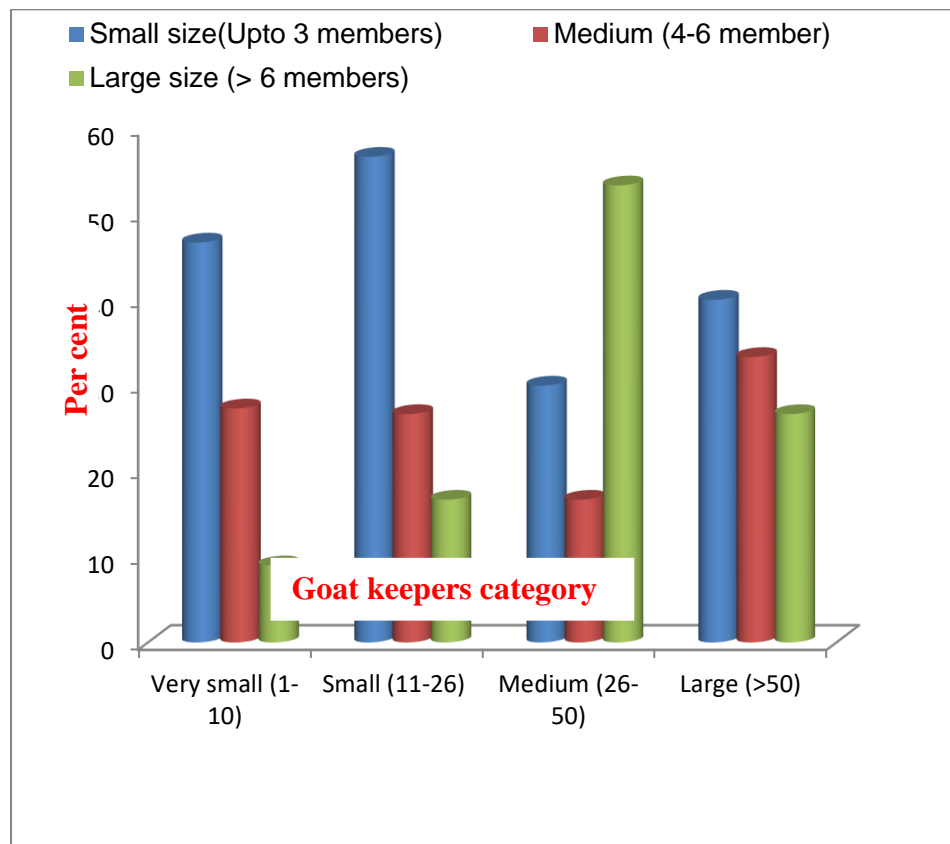
Land holding is assumed as an important variable that influences utility perception behaviour of the goat keepers and results obtained has been presented in table 3 and depicted in fig 4.

It was apparent from table 3 observed that majority (29.18 per cent) of the goat keepers were belonged to category of landless (i.e. having no land) followed by 29.16 per cent of goat keepers were belonged to category of marginal land holding (up to 1 ha.) and 25.00 per cent of the goat keepers were belonged to small land holding (1.1 to 2.0 ha.) and 16.66 per cent of the goat keepers were belonged to category of large size (above 2.0 ha.) The average land holding of the goat keepers is 1.5 ha.

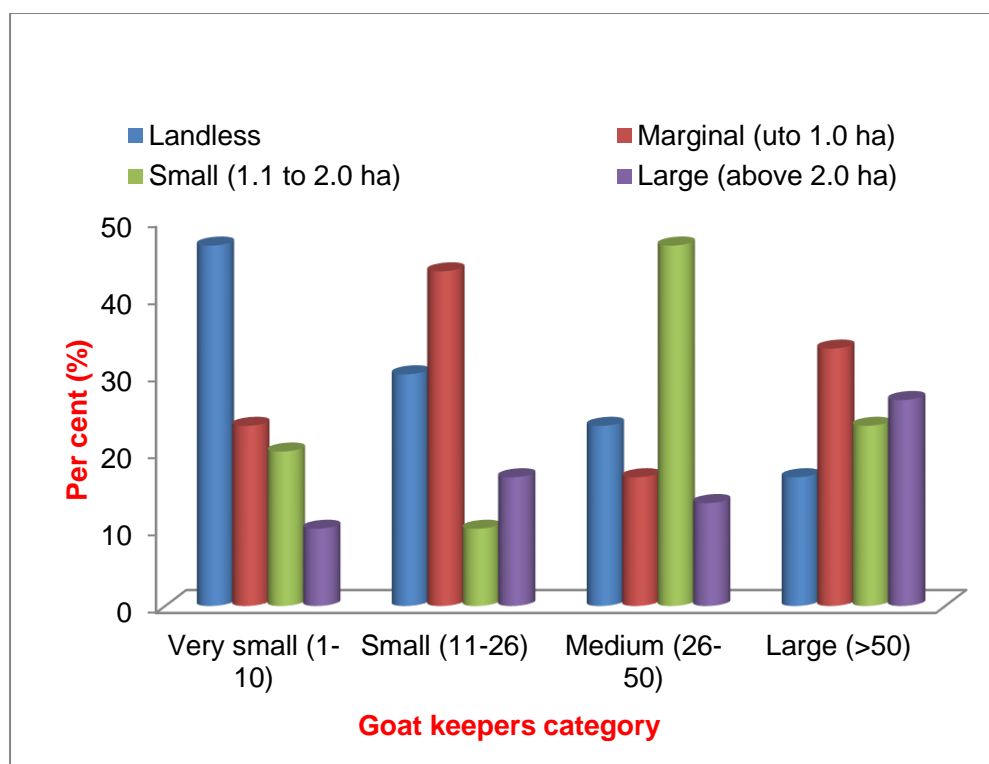
It was concluded that maximum percentage of the goat keepers were found to be in landless category. It is seen from this results that the poor people having no land attracts toward the allied business like goat keeping.

Tudu and Roy (2015), reported goat rearing is much popular amongst the landless, small marginal farmers (46%), followed by the agricultural labourers (38%).

Sabapara (2016), resulting that majority of the respondents were landless and agricultural labourers and had goat rearing as their subsidiary occupation as a source of income.



**Fig:3 Classification of goat keepers according to family size**



**Fig:4 Classification of goat keepers according to land holding**

#### 4.1. 2 Dependent variable:

**Table 4: Classification of goat keepers according to their overall knowledge and Adoption level**

Sr. No.	Knowledge Level (Scores)	Goat keepers (N = 120)	
		Number	Percentage
1	Low (Up to 99)	28	23.34
2	Medium (100 to 130)	43	35.83
3	High (131 and above)	49	40.83
	<b>Total</b>	<b>120</b>	<b>100.00</b>
Sr. No.	Adoption Level (Scores)	Number	Percentage
1	Low (Up to 77)	31	25.84
2	Medium (78 to 107)	51	42.50
3	High (108 and above)	38	31.66
	<b>Total</b>	<b>120</b>	<b>100.00</b>

(Figures in parenthesis indicate percentage of total)

#### **4.1. 2. 1. Knowledge**

The information about the level of knowledge of goat rearing management practices possessed by the goat keepers were collected, tabulated and analysed. The results obtained are presented in the Table 4.

The table 4 revealed that, 35.83 per cent goat keepers having medium and 40.83 high knowledge level regarding the goat rearing management practices while, 23.34 per cent of them had low level of knowledge about the same. It can be concluded that, most of the goat keepers had medium and high level of knowledge.

This might be due to the reason that, majority of the goat keepers were group of middle level of education i.e. secondary and higher secondary, having medium source of information use, medium level of scientific orientation and medium goat rearing experienced.

Bashir *et al.* (2017), reported that impact of training was measured in terms of gain in knowledge. It was noticed that women participation was more in off-campus trainings (66.39%) when compared to state level on-campus trainings (9.68%).

#### **4. 1. 2. 2. Adoption**

The information about the level of adoption of goat rearing management practices by the goat keepers were collected, tabulated and analyzed. The results are presented in the table 4.

The above table 4 revealed that 42.50 per cent goat keepers having medium adoption level regarding the goat rearing management practices while, 31.66 per cent and 25.84 per cent of them had high and low level of knowledge about the same, respectively.

This may be due to the reason that, majority of the goat keepers were from the group who had medium level of knowledge of goat rearing management practices.

It can be concluded from the above results that, most of the goat keepers had medium level of adoption category.

Meena *et al.* (2011), reported 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.

Yadaw and Sharma (2012), reported the overall basis the level of adoption regarding improved management was 58.27 per cent followed by improved breeding (55.41%), improved health care practices (52.40%) and improved feeding (29.33%).

## **4.2. Adoption of goat rearing management practices**

### **4.2.1 Feeding and management practices**

Adequate and relevant adoption of goat rearing management practices followed by the goat keepers has relevance in obtaining maximum benefit through production. Looking to the importance of adoption, goat keepers adoption of management practices was studied practice wise and the data in this regards thus obtained has been presented in Table 5.

#### **4.2.1.1 System of feeding**

It was observed from table 5 and depicted in fig 5 that, majority of goat keepers were followed only grazing (84.16 %), stall feeding plus grazing (15.84%), and none of the goat keepers followed stall feeding (0.00 %). Very few goat keepers adopted only grazing and stall feeding due to unavailability of sufficient fodder for stall feeding and grazing land is hardly available.

Grazing is a must for profitable dairying. However, now a days due to availability of poor quality grazing land, the animals are poorly grazed in Risod tahsil. Generally in a day partially grazed on fallow land, forest land and field boundaries

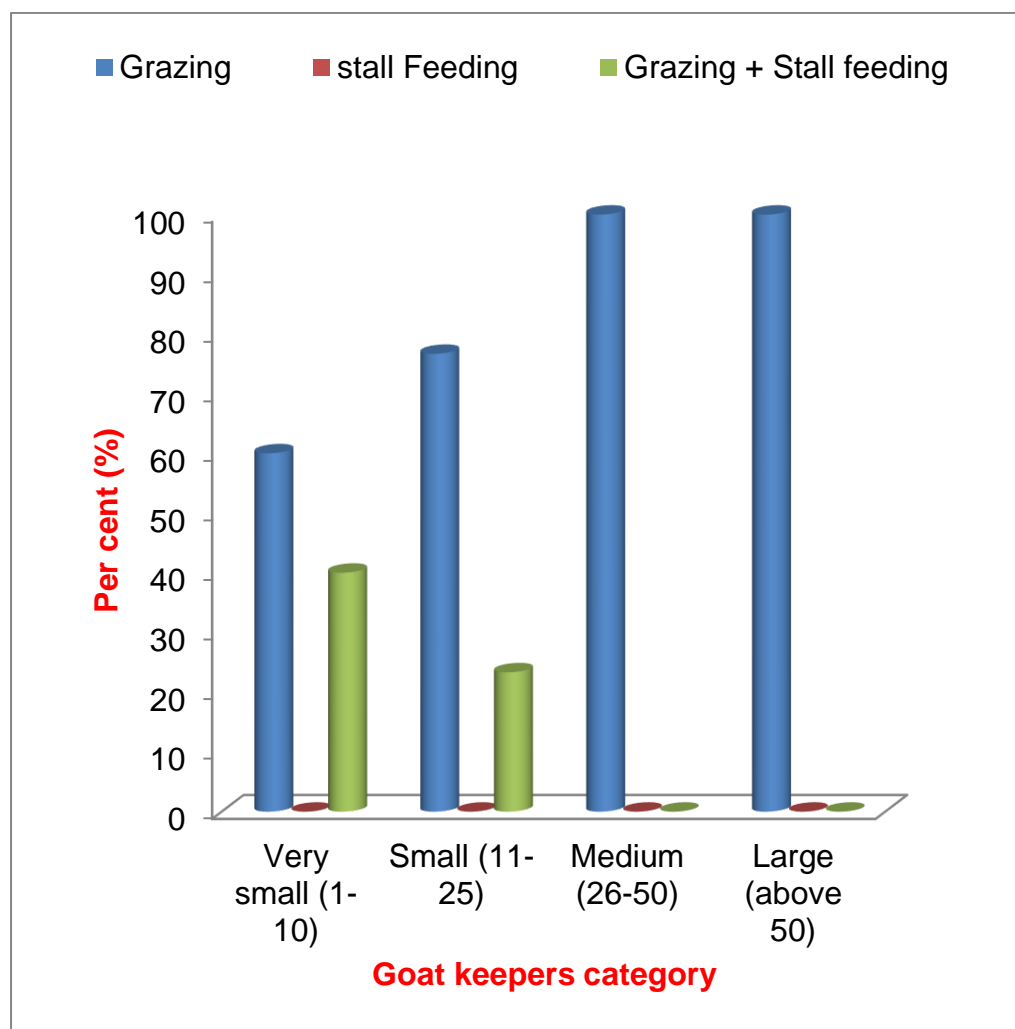
**Table 5. Feeding and management practices adopted by goat Keepers**

<b>Sr. No</b>	<b>Feeding practices</b>	<b>Very Small (1-10)</b>	<b>Small 11-25)</b>	<b>Medium (26-50)</b>	<b>Large (above 50)</b>	<b>Total 120</b>
1	System of feeding	30 (100)	30 (100)	30 (100)	30 (100)	120 (100)
i)	Grazing	18 (60.00)	23 (76.67)	30 (100)	30 (100)	101 (84.16)
ii)	Stall feeding	0 (00)	0 (00)	0 (00)	0 (00)	0 (00)
iii)	Grazing + Stall feeding	12 (40.00)	7 (23.33)	0 (00)	0 (00)	19 (15.84)
2	Feeding of green fodder	11 (36.66)	7 (23.33)	6 (20.00)	3 (10.00)	27 (22.5)
3	Feeding of dry fodder	9 (30.00)	3 (10.00)	5 (16.67)	2 (6.66)	19 (15.83)
4	Additional ration for pregnant doe	14 (46.66)	8 (26.67)	7 (23.33)	4 (13.33)	32 (26.66)
5	Feeding of common salt	16 (53.55)	17 (56.66)	6 (20.00)	5 (16.67)	44 (36.66)
6	Feeding of concentrates	7 (23.33)	2 (6.66)	3 (10.00)	4 (13.33)	16 (13.33)
7	Processing of concentrate before feeding (crushing, soaking etc.)	3 (10.00)	11 (36.66)	7 (23.33)	4 (13.33)	25 (20.83)
8	Use of mineral mixture or mineral bricks	0 (00)	0 (00)	0 (00)	0 (00)	0 (00)
9	Feeding of concentrates mixture					
i)	Separate	9 (30.00)	13 (43.33)	7 (23.33)	5 (16.66)	34 (28.34)
ii)	With roughages	21 (70.00)	23 (76.66)	25 (83.33)	17 (56.66)	86 (71.66)
10	Total	30 (100)	30 (100)	30 (100)	30 (100)	120 (100)

(Figures in parenthesis indicate percentage of total)

The present study was similarly matched with Sandhu *et al.* (2017), reported that Large chunk of goat keepers depends only on grazing (77.78%) for feeding their animals followed by grazing-cum-stall feeding (14.44%) and stall feeding (zero grazing) alone (7.78%).

Roy *et al.* (2002), suggested that goats remained on grazing for 5-6 hours daily, therefore supplementary feeding with recommended quantity of concentrate as well as seasonally available green and dry fodder were fed subject to availability.



**Fig 5: System of feeding and supply of fodder**



**Plate 3. Grazing of goat**

#### **4.2.1.2 Feeding of green fodder**

Nutrition is one of the important aspect, which influences the goat production. Shortage of green fodder in almost all the regions, leads to under-feeding of animals and there by resulting the poor performance in milk production. It was observed from table 5 and depicted in fig 6 that, out of the 120 goat keepers of each flock size in category of goat keepers *viz.* very small, small, medium and large with 36.66 per cent, 23.33 per cent, 20.00 per cent and 10.00 per cent, respectively adopted the feeding of green fodder. The overall adoption of practice of feeding green fodder was 22.5 per cent as this is minimizing the goat production.

This results similarly observed by Sandhu *et al.* (2017), reported that Majority of the goat keepers fed their animals on common property resources (85.56%) followed very few goat keepers fed cultivated green fodder (13.33%) and purchased fodder (1.11%).

The present results were in conformity with the observation reported by Shyam and Narpat (2016) who observed that scarcity of

green fodder (78.57 per cent) and diminishing grazing area (77.86 per cent).

#### **4.2.1.3 Feeding of dry fodder**

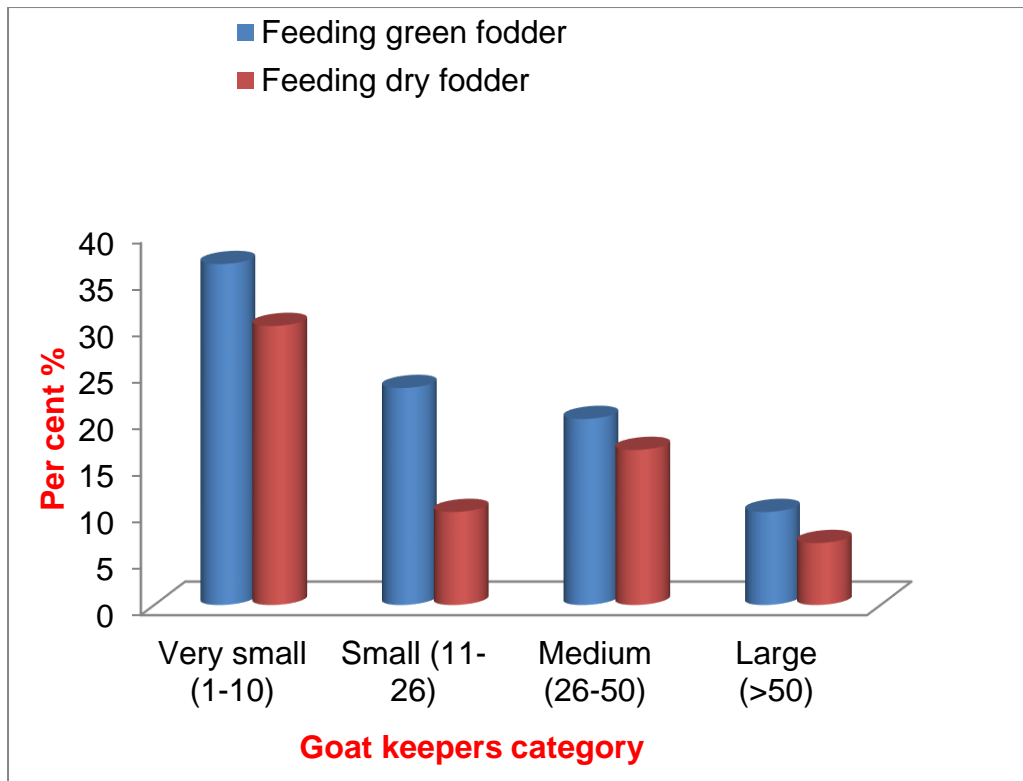
Feeding of dry fodder was the imaginary thought for the goat keepers due to lack of sufficient green fodder. The constraints in this respect opined by the goat keepers were lack of scientific knowledge, shortage of green fodder, lack of irrigation facilities, lack of technical guidance, lack of interest and lack of storage facilities were the prominent constraints behind feeding dry fodder. It was observed from table 5 and depicted in fig 6 that, out of the 120 goat keepers of each flock size in category of goat keepers *viz.* very small, small, medium and large with (30.00%), (10.00%), (16.67%) and (6.66%) per cent, respectively adopted the feeding of dry fodder. The overall adoption of practice of feeding dry fodder was 15.83 per cent.

Similar result was reported by Sasane *et al.* (2012), resulted all of the respondents completely adopted the management practices like purpose of goat breeds, grazing plus stall feeding goat rearing methods, maize, jowar straw, bajra straw as forage crop.

Roy *et al.* (2002), suggested that goats remained on grazing for 5-6 hours daily, therefore supplementary feeding with recommended quantity of concentrate as well as seasonally available green and dry fodder were fed subject to availability.

#### **4.2.1.4 Additional ration for pregnant animal**

The pregnant animals should be given concentrate mixture during last trimester of pregnancy over and above the maintenance quota for the overall development of foetus. However, it was observed from table 5 and depicted in fig 7 that, overall adoption of this practice was only (26.66) per cent. Considering the various categories of the goat keepers, the higher adoption of this practice was found in very small size goat keepers (46.66 per cent), followed by small size goat keepers (26.67 per cent), medium size goat keepers (23.33 per cent), and (13.33) found in large size category of the goat keepers.



**Fig 6. Feeding green and dry fodder**



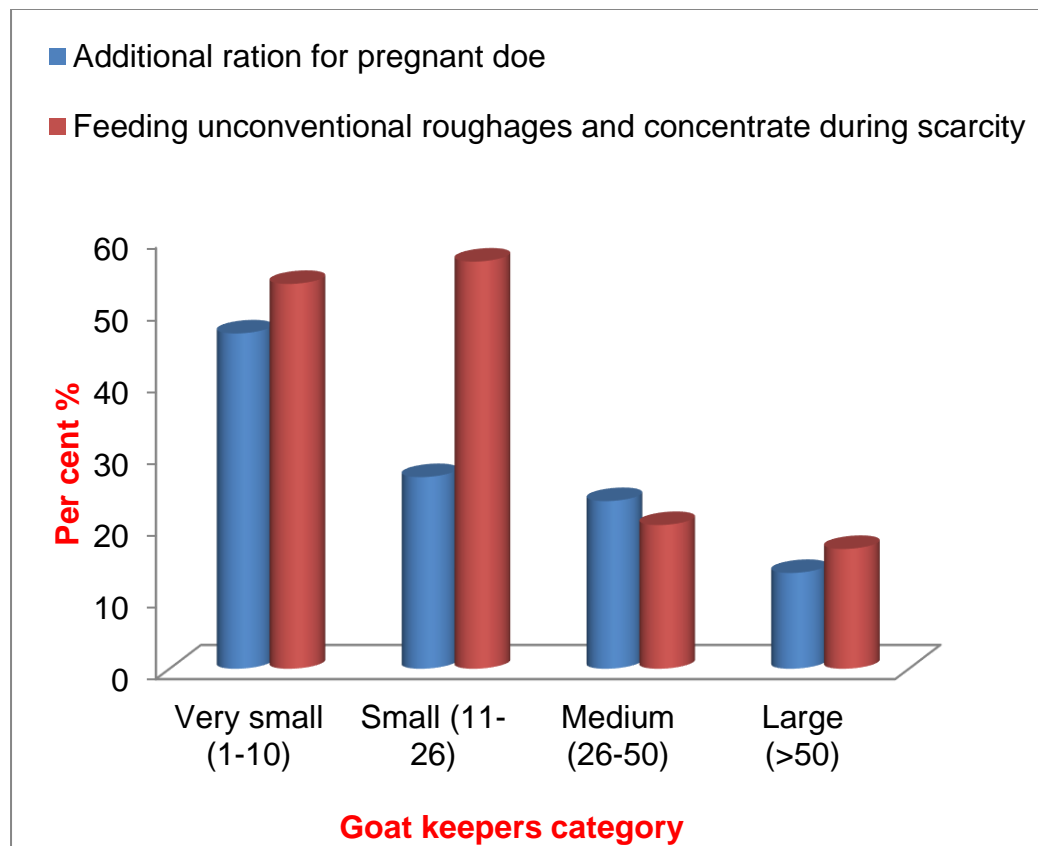
**Plate 4: Feeding of green and dry fodder**

The present trend of the result is in agreement with result reported by Tripathi and Gautam (2003), majority of the respondents fed common salt (53.33%), and extra concentrates to lactating and pregnant goats (80.67%).

#### 4.2.1.5 Feeding of common salt

It was observed from table 5 and depicted in fig 7 that, majority of goat keepers were (56.66 per cent), (53.55 per cent), (20.00 per cent), and 16.67 (per cent) were small, very small, medium, and large size of goat keepers. Overall adoption of this practice was only 36.66 per cent.

The present trend of the result was in agreement with result reported by Tripathi and Gautam (2003), majority of the respondents fed common salt (53.33%).



**Fig 7. Feeding additional ration for pregnant doe and Feeding common salt.**

#### **4.2.1.6 Feeding of concentrate**

It was observed from table 5 and depicted in fig 8 that, the adoption of this practice was highest in very small (23.33%) followed by large (13.33%), medium (10.00%), and small (6.66%) category of goat keepers. The overall adoption rate feeding concentrate according to milch production was 13.33 per cent. The goat keepers were utilizing groundnut seed cake, cotton seed, bran, pulse chuni for preparation of home-made concentrate mixture and sugras in the form of compounded concentrate feed.

Similar result were reported by Mandavkar *et.al.* (2015), Highest increase in adoption was found in feeding of colostrums to kids (53.3%), and use of mineral mixture & bricks and concentrate feed (36.7%).

#### **4.2.1.7 Processing of concentrate before feeding (crushing, soaking etc.)**

This is a very important feeding of dairy animals. Concentrates need to be processed before feeding for increasing its utilization. It involves the crushing of grain, soaking of cake. It was observed from table 5 and depicted in fig 8 that, out of 120 dairy owners from each type of flock size, this practice was adopted by small, medium, large and very small category of goat keepers with 36.66 per cent, 23.33 per cent, 13.33 per cent, and 10.00 per cent, respectively. The overall practice followed by goat keepers were 20.83 per cent among 120 selected goat keepers.

Shyam and Narpat (2016), low adoption was in providing mineral blocks (3.57 per cent), feeding crushed cotton cack, tamarind seeds and neem leaves (3.57 per cent).

#### **4.2.1.8 Use of mineral mixture or mineral bricks**

It was observed from table 5 and depicted in fig 8 that, overall none of goat keepers used mineral mixture or mineral bricks. The

constraints in non-adoption of this valuable recommendation reported by goat keepers were lack of scientific knowledge and lack of technical guidance in adopting the practice of use of mineral mixture or mineral bricks.

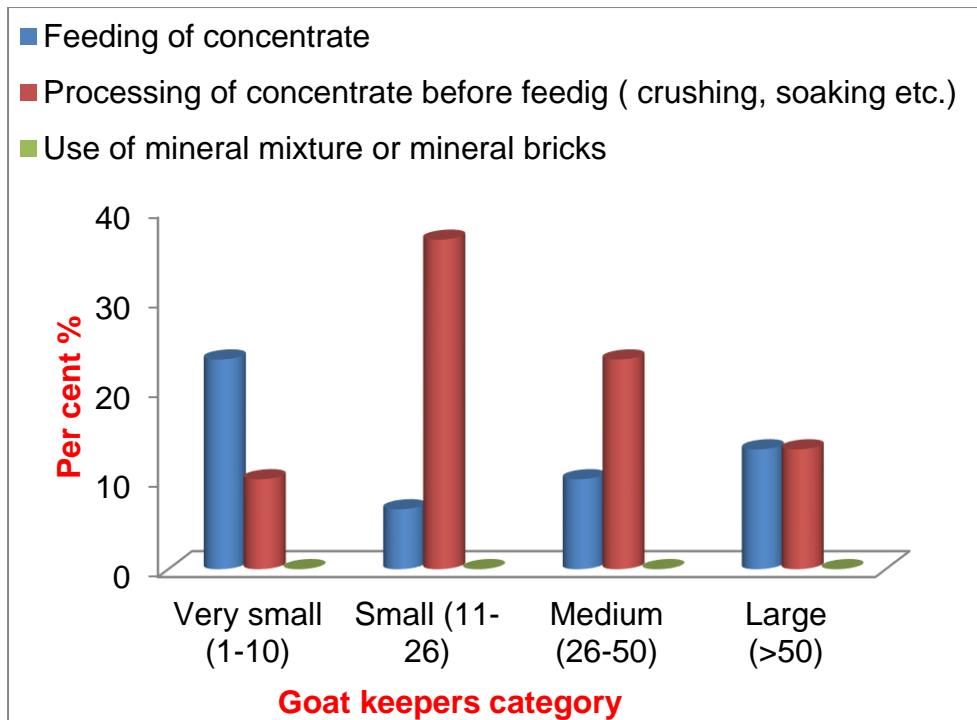
Similar result were reported by Narmatha *et al.* (2013), low adoption was in providing mineral blocks (3.57 per cent), feeding crushed prosopsis, tamarind seeds neem leaves (3.57 per cent),

#### **4.2.1.9 Feeding of concentrate mixture (separate or with roughages)**

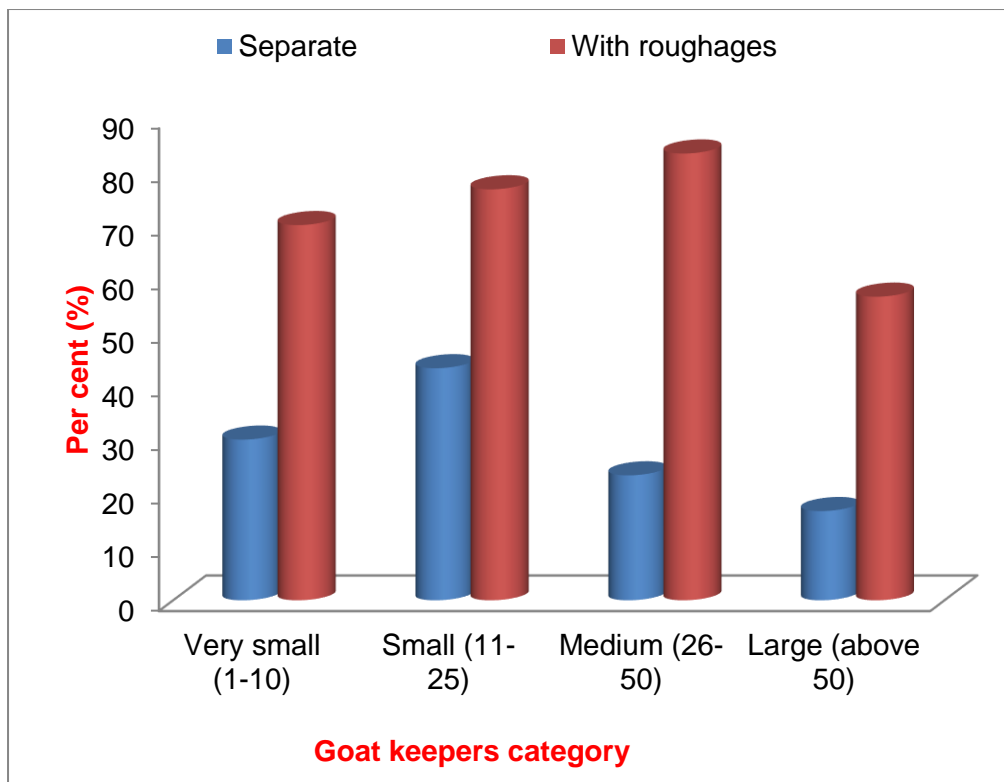
In the present scenario total mixed ration system for feeding livestock has become increasing popular among milch animal. In this system locally available feed ingredients or concentrate mixture are mixed with roughages in certain proportion to ensure balance ration for consumption by animal. It was observed from table 5 and depicted in fig 9 that, out of 120 goat keepers from each type of flock size adopted by separate concentrate feeding by 30.00 per cent, 43.33 per cent, 23.33 per cent, and 16.66 per cent very small, small, medium and large category of goat keepers respectively. The overall adoption was 28.34 per cent among 120 selected goat keepers.

Similarly feeding of concentrate with roughages were adopted by 70.00, 76.66, 83.33, and 56.66 per cent goat keepers from each type of flock size of very small, small medium and large category of goat keepers respectively. The overall adoption was 71.66 per cent among 120 selected goat keepers.

The present results were in conformity with the observation reported by Sandhu *et al.* (2017) Small fraction of goat farmers (33.33%) offer separate grain/concentrate and majority (74.07%) of them residual grain occasionally.



**Fig 8. Feeding concentrate, Processing of concentrate before feeding (crushing, soaking etc.) and Use of mineral mixture or mineral bricks**



**Fig 9. Feeding of concentrates mixture (separate and with roughages)**

#### 4.2.2 Breeding practices adopted by goat keepers

Management is the art and science of combining idea, facilities, processes, materials and labour to produce market worthwhile product for service successfully.

The management practices adopted by different categories of goat keepers were calculated in each category are presented in table 6.

**Table 6. Breeding practices adopted by goat keepers**

Sr. No.	Breeding practices	Very small (N=30)	Small (N=30)	Medium (N=30)	Large (N=30)	Total (N=120)
1	Artificial insemination	0 (00)	0 (00)	0 (00)	0 (00)	0 (00)
2	Natural breeding	30 (100)	30 (100)	30 (100)	30 (100)	120 (100)
3	Cross breeding	0 (00)	0 (00)	0 (00)	0 (00)	0 (00)
4	Care after service	19 (63.33)	23 (76.66)	16 (53.33)	13 (43.33)	71 (59.16)
5	Drying milk at advance stage of pregnancy	23 (76.66)	24 (80.00)	18 (60.00)	21 (70.00)	86 (71.66)

(Figures in parenthesis indicate percentage of total)

##### 4.2.2.1 Methods of breeding

###### 4.2.2.1.1 Artificial insemination

It was observed from table 6 and depicted in fig 10 that, none of the goat keepers (100%) not adopted artificial insemination. The constraints lack of breeding knowledge about breeding practices, and indiscriminate breeding practices.

This results were more or less comparable with Tanwar (2011) Regarding breeding, main constraints were inadequate availability of breeding buck, lack of breeding knowledge about breeding practices, and indiscriminate breeding practices.

#### **4.2.2.1.2 Natural breeding**

It was further observed from table 6 and depicted in fig 10 that, all of goat keepers (100%) are adopted natural method of breeding.

This results were more or less comparable with Sasane *et al.*(2012) All the respondents completely adopted the management practices like purpose of goat breeds, natural breeding, selection by heredity, parents giving 2-3 kids, breeding age of buck, culling, heat detection etc.

#### **4.2.2.1.3 Cross breeding**

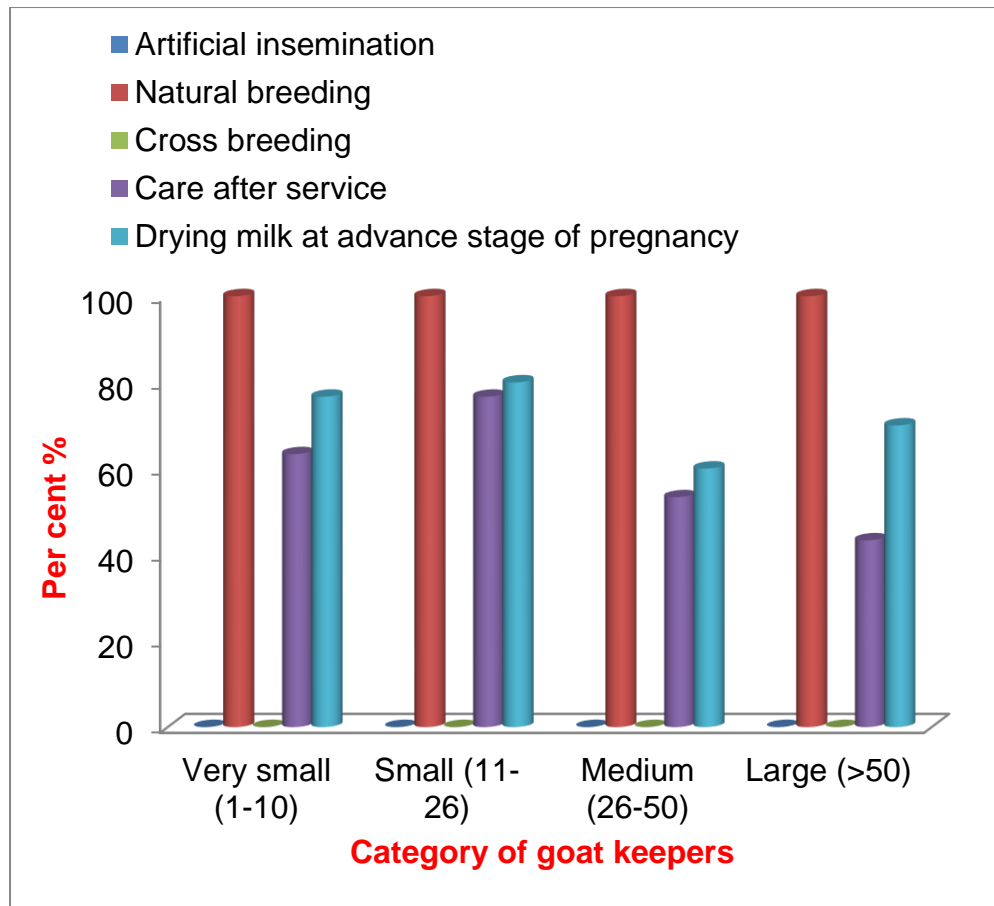
It was observed from table 6 and depicted in fig 10 that, none of the goat keepers (100%) not adopted cross breeding. The constraints lack of breeding knowledge about breeding practices and indiscriminate breeding practices.

This results were more or less comparable with Tanwar (2011) Regarding breeding, main constraints were inadequate availability of breeding buck, lack of breeding knowledge about breeding practices, indiscriminate breeding practices, lack of training centre in rural area.

#### **4.2.2.1.4 Care after service**

It was observed from table 6 and depicted in fig 10 that, majority of small size group (76.66%) goat keepers followed by very small (63.33%), medium (53.33%) and large (43.33%). At an overall 59.16 per cent goat keepers adopting care after service.

The present results were in conformity with the observation reported by Mohan *et al.* (2009), studied on problems of pre-mature delivery/abortion, sometimes goats delay in releasing placenta, provision of availability of veterinary doctor in time, provision of availability of medicines free of cost, improved breeding bucks on low price, these facility were suggested by the goat farmers as factors helping in the adoption of scientific goat rearing.



**Fig 10 Breeding practices adopted by goat keepers**

#### 4.2.2.1.5 Drying milk at advance stage of pregnancy

It was observed from table 6 and depicted in fig 10 that, out of 120 goat keepers from each type of flock size were adopted by Drying milk at advance stage of pregnancy 76.66 per cent, 80.00 per cent, 60.00 per cent, and 70 per cent very small, small, medium and large category of goat keepers respectively. The overall adoption was 71.66 per cent among 120 selected goat keepers.

The present results were in conformity with the observation reported by Tripathi and Gautam (2003), Segregating sick animals from the farm, leaving milk at advance stage of pregnancy treatment of sick animal by veterinarians, providing clean drinking water and proper cleaning of utensils were adopted by 80-100% families.

### 4.2.3 Housing management practices adopted by goat keepers

**Table 7. Housing management practices adopted by goat keepers**

Sr. No.	Housing practices	Very small (N=30)	Small (N=30)	Medium (N=30)	Large (N=30)	Total (N=120)
1	Maintain shed in clean condition	30 (100)	30 (100)	30 (100)	30 (100)	120 (120)
2	Adequate light and ventilation	22 (73.33)	11 (36.66)	11 (36.66)	13 (43.33)	57 (47.5)
3	Separate arrangement for kids and buck	13 (43.33)	10 (33.33)	18 (60.00)	20 (66.66)	61 (50.83)
4	Providing clean drinking water	23 (76.66)	17 (56.66)	6 (20.00)	8 (26.66)	54 (45.00)

(Figures in parenthesis indicate percentage of total)

#### 4.2.3.1 Maintain shed in clean condition

It was observed from the table 7 and depicted in fig 11 that, all of the goat keepers (100.00%) adopted regular cleaning of shed (120 goat keepers).

The present results were in conformity with the observation reported by Jana *et al.* (2014) observed that Most of the goat keepers (90%) reared their animal following semi-intensive system in Kachcha houses (69.33%) which constructed separately with locally available low-cost material and clean regularly.

#### 4.2.3.2 Adequate light and ventilation

It was observed from the table 7 and depicted in fig 11 that, Majority of the very small sized goat keepers (73.33%) followed by large (43.33%), small and medium sized (36.66%), were adopting adequate light and ventilation. The overall adoption was 47.50 per cent among 120 selected goat keepers.

Salahuddin *et al* (2017), revealed that (77.25%) traditional farmer house were attached with their own house without maintaining proper direction and ventilation system.

#### **4.2.3.3 Separate arrangement for buck and kid**

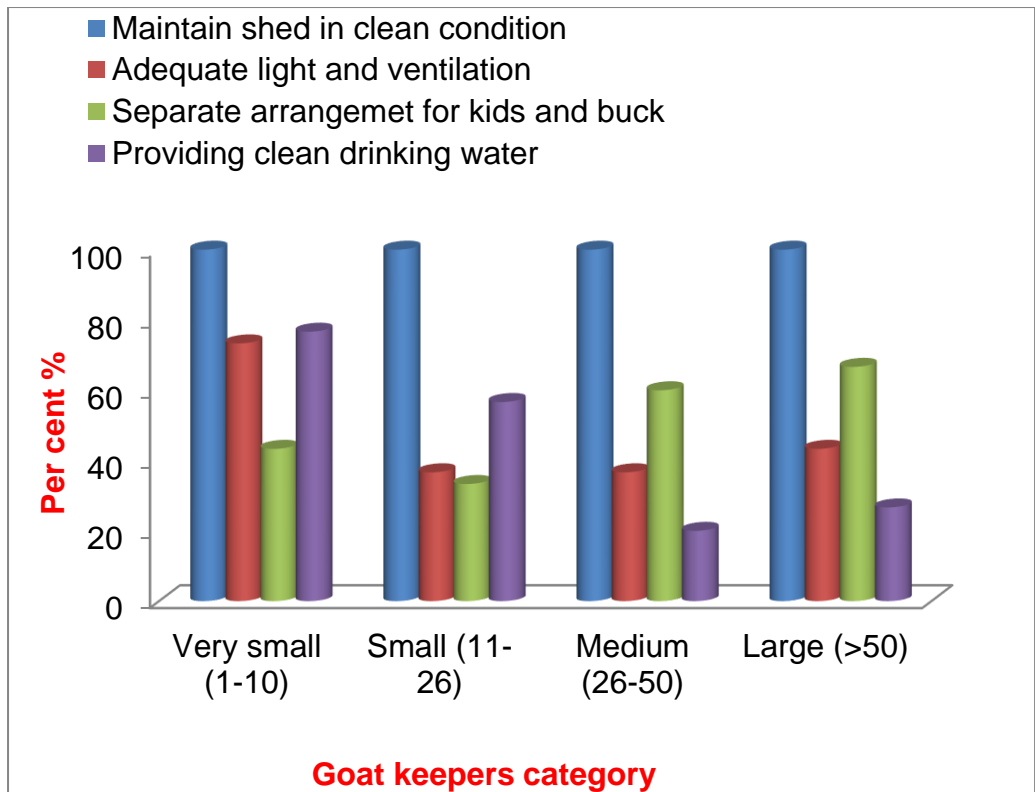
It was observed from the table 7 and depicted in fig 11 that, Majority of the large sized goat keepers (66.66%) followed by medium (60.00%), very small (43.33%), and small sized (33.33%) were adopting Separate arrangement for buck and kid. The overall adoption was 50.83 per cent among 120 selected goat keepers.

The present results were in conformity with the observation reported by Roy *et al.* (2002), Goats were housed in the sheds during night particularly in winter and rainy season. Various categories of goats were housed separately according to age, kid ,buck sex, and physiological status viz., pregnant, dry and milch.

#### **4.2.3.4 Providing clean drinking water**

It was observed from the table 7 and depicted in fig 11 that, the overall adoption was 45.00 per cent among 120 selected goat keepers. Majority of the very small sized goat keepers (76.66%) followed by small (56.66%), large (26.66%), and medium (20.00%) sized goat keepers were adopted providing clean drinking water of goat.

This results were more or less comparable with Tripathi and Gautam (2003), Providing clean drinking water and proper cleaning of utensils were adopted by 80-100% families.



**Fig 11. Housing practices adopted by goat keepers**



**Plate 5. Drinking water to goat**

#### 4.2.4 Health care practices adopted by goat keepers

**Table 8. Health care practices adopted by goat keepers**

Sr. No.	Health care practices	Very small (N=30)	Small (N=30)	Medium (N=30)	Large (N=30)	Total (N=120)
1	Washing of goats	3 (10.00)	5 (16.66)	7 (23.33)	2 (6.66)	17 (14.16)
2	Control of external parasites	13 (43.33)	9 (30.00)	11 (36.66)	7 (23.33)	40 (33.33)
3	Vaccination	9 (30.00)	8 (26.66)	7 (23.33)	6 (20.00)	30 (25.00)
4	Deworming	0 (00)	0 (00)	0 (00)	0 (00)	0 (00)

(Figures in parenthesis indicate percentage of total)

##### 4.2.4.1 Washing of goat

It was revealed from the table 8 and depicted in fig 12 that, as regards with washing of goat, majority of 23.33 medium size goat followed by small, very small and large with 16.66 per cent, 10.00 per cent and 6.66 per cent adoption respectively. The overall adoption was only 14.16 per cent among 120 selected goat keepers.

Tanwar (2011), who observed that most of the goat farmers with respect to health care the major constraints were lack of veterinary services in villages, high cost of treatment, ignorance about importance of deworming, lack of knowledge about common diseases and vaccination programme not carried out by any agency.

##### 4.2.4.2 Control of external parasite

It was revealed from the table 8 and depicted in fig 12 that, as regards with the control of external parasite very small sized goat keepers (43.33%) ranked first in adopting control of external parasite followed by (36.66%) medium rank second, (30.00%) small rank third, and large (23.33%) rank forth. At an overall level 33.33 per cent goat keepers control external parasite.

This results were more or less comparable with Mandavkar *et.al* (2015), who observed that half of the goat keepers use of vaccine like PPR, ET, FMD etc. (56.7 %) followed by lack of timely veterinary facility at the village level (50%).

#### **4.2.4.3 Vaccination**

It was revealed from the table 8 and depicted in fig 12 that, at an overall level 25.00 per cent goat keepers adopted vaccination against the diseases while 75.00 per cent goat keepers were not adopting the vaccination of the animals. The trend in adopting vaccination was more in very small (30.00%), followed by small (26.66%), medium (23.33%) and large 20.00%)

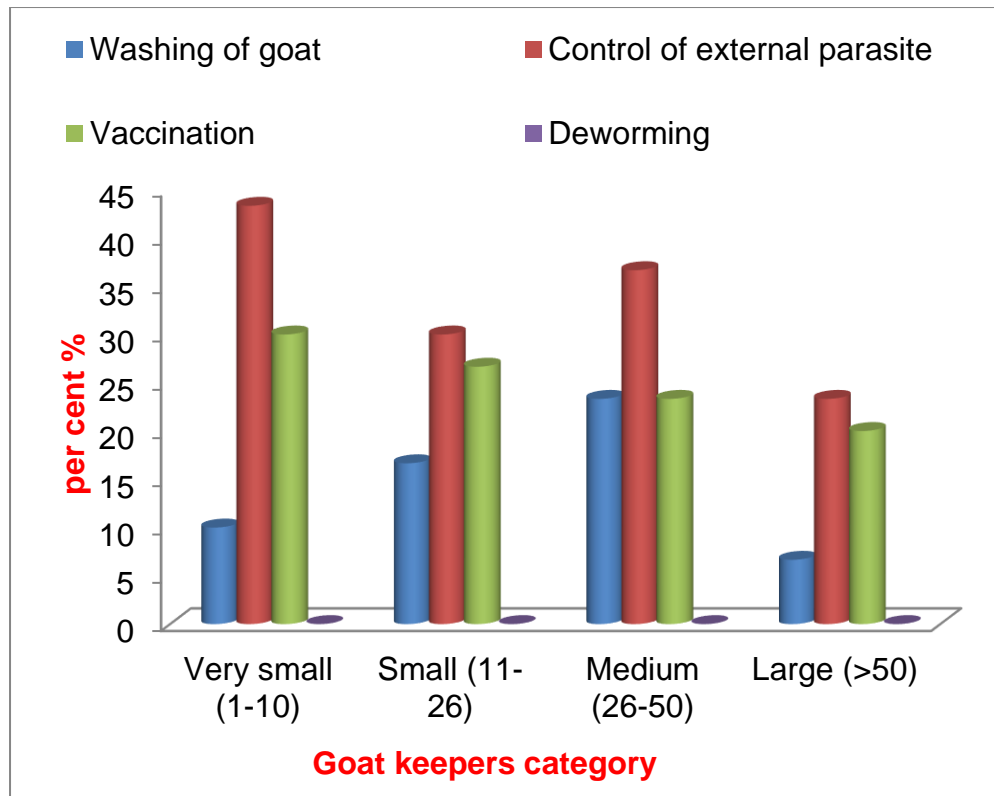
This results were more or less comparable with Sangameswaran and Sunita Prasad (2016), Majority of the farmers were not following the practice of deworming and vaccination. Majority of the farmers was not availing any health care and preventive services for their goats.

Jana *et al.* (2014), who observed that most of the goat farmers (57.33%) vaccinated there goats against major diseases like goat pox, peste ruminant and foot and mouth disease.

#### **4.2.4.4 Deworming of goat**

It was revealed from the table 8 and depicted in fig 12 that, the all of the goat keepers (100.00%) not adopted deworming practices of health care (120 goat keepers).

This results were less comparable with Mandavkar *et.al* (2015), Highest increase in adoption was found in feeding of colostrums to kids (53.3%), deworming of goats (46.7%) and use of mineral mixture and concentrate feed (36.7%).



**Fig 12. Health care practices adopted by goat keepers**

### **4.3 Constraints faced by feeding and management practices adopted by goat keepers**

The scientific research in the field of livestock production technology on the basis of region specific demand of dairy sector is moving very fast. There is now dearth of technical know-how in these days of advanced technology. There may be innumerable constraints before the goat keepers, consequently they do not adopting the improved practices of livestock rearing to the extend as expected. With this point of view constraints faced by tribal goat keepers was discussed, recorded and presented in table 9 and related fig. It was divided in feeding, breeding, housing and health care constraints.

#### **4.3.1 Feeding practices**

##### **4.3.1.1 High cost of feed, fodder and green fodder**

From the above table 9 and depicted fig 13 it was observed that, the constraints of goat keepers were high cost of feed, fodder and

green fodder faced by very small, small, medium and large was 76.66%, 93.33%, 100%, and 100% respectively.

The overall 92.50 per cent goat keepers faced problem of high cost of feed, fodder and green fodder.

Tanwar (2011), revealed that the main constraint regarding feeding management was lack of knowledge about balanced feeding, high cost of feeds and fodder, lack of irrigation facilities, non availability of green fodder.

#### **4.3.1.2 Inadequate pasture and grazing land**

From the table 9 and depicted fig 13 it was concluded that, the constraints of goat keepers is inadequate land holdings faced by majority of goat keepers in very small group (66.66%), followed by small (63.33%), large (50.00%) and medium (40.00%) group. The overall constraints faced by 55.00 per cent of goat keepers was inadequate land holding.

Narmatha *et al.* (2013), revealed that scarcity of green fodder (78.57 per cent), diminishing grazing areas (77.86 per cent).

#### **4.3.1.3 High cost of concentrate and mineral mixture**

From the above table 9 and depicted fig 13 it was observed that, the constraints related to feeding of goat keepers were high cost of concentrates and mineral mixture faced by very small, small, medium and large group of goat keepers was 63.33%, 43.33%, 23.33%, and 33.33% respectively. At an overall 40.83 per cent goat keepers observed high cost of concentrates in feeding goat. It is indicated from the above finding that high cost of concentrates and mineral mixture in feeding of goat is major constraints faced by goat keepers.

This result were more or less comparable with Sandhu *et al.* (2017), who observed that majority of the goat farmers found inadequate feeding of concentrate (80.00%), ignorance about balanced feeding (86.67%), non-availability of mineral mixture (85.56%),

**Table 9. Constraints faced in feeding and management practices adopted by goat keepers**

Sr. No	Constraint	Very small (N=30)	Small (N=30)	Medium (N=30)	Large (N=30)	Total (N=120)
<b>A Feeding practice</b>						
1	High cost of feed, fodder and green fodder	23 (76.66)	28 (93.33)	30 (100)	30 (100)	111 (92.5)
2	Inadequate pasture and grazing land	20 (66.66)	19 (63.33)	12 (40.00)	15 (50.00)	66 (55.00)
3	High cost of concentrate and Mineral mixture	19 (63.33)	13 (43.33)	7 (23.33)	10 (33.33)	49 (40.83)
4	Lack of capital to start goat farm	24 (80.00)	18 (60.00)	27 (90.00)	25 (83.33)	94 (78.33)
<b>B Breeding practices</b>						
1	Non availability of pure breed buck	30 (100)	30 (100)	30 (100)	30 (100)	120 (100)
2	Lack of knowledge about breeding practice	30 (100)	30 (100)	30 (100)	30 (100)	120 (100)
3	Lack of technical guidance	30 (100)	30 (100)	25 (83.33)	24 (80)	109 (90.83)
<b>C Housing management</b>						
1	Inadequate space of tying pregnant animal	26 (86.66)	18 (60.00)	15 (50.00)	29 (96.66)	88 (73.34)
2	Lack of knowledge about housing management	30 (100)	30 (100)	28 (93.33)	29 (96.66)	117 (97.50)
3	Non-availability of loan facility	30 (100)	25 (83.33)	28 (93.33)	29 (96.66)	112 (93.33)
<b>D Health care practices</b>						
1	Lack of knowledge about health care practices	20 (66.66)	15 (50.00)	16 (53.33)	9 (30.00)	65 (50.00)
2	Inadequate veterinary Aids	21 (70.00)	28 (93.34)	22 (73.33)	21 (70.00)	92 (76.66)
3	High cost of medicine	28 (93.33)	27 (90.00)	25 (83.33)	23 (73.67)	103 (85.83)

(Figures in parenthesis indicate percentage of total)

#### **4.3.1.4 Lack of capital to start goat farm**

The result as evident from the table 9 and depicted fig 13 revealed that, the major constraint faced by the keepers was lack of capital. Majority of goat keepers of medium (90.00%), followed by large group (83.33%), very small (80.00%), and small (60.00%) group were faced problem of lack of loan facility. The overall 78.33 per cent goat keepers observed problem of lack of loan facility.

Thombre *et al.* (2010), observed that costly veterinary services (76.38) inadequate and untimely loan supply (68.05%) were major problems faced by the goat keepers.

Narmatha *et al.* (2013) The major constraints perceived by the goat farmers were exploitation by middlemen (88.57 per cent), complicated loan getting/sanctioning procedure (87.86 per cent),

#### **4.3.2 Breeding practices**

##### **4.3.2.1 Non availability of pure breed buck**

The result as evident from the table 9 and depicted fig 14 revealed that, the major constraint faced by the keepers was non availability of pure breed buck. Out of 120 (100%) very small, small, medium and large group of goat keepers was faced constraints lack of pure breeding buck.

Tudu and Roy (2015), were reported that lack of improve breed was problem for minimum 8% cases. From this study, it can be said that goat keeping is still an occupation of poor community.

Jana *et al* (2014), revealed that lack of pure breed buck (Rank I), high incidence of disease (Rank II), and lack of capital to start goat farm (Rank III) were perceived to be the major constraints by the goat rearers.

##### **4.3.2.2 Lack knowledge about breeding practices**

From the above table 9 and depicted fig 14 it was revealed that, the constraints faced by goat keepers were lack of scientific knowledge about breeding faced by majority of goat keepers in very small, small, medium and large group was (100%). Therefore overall 100 per cent of

goat keepers were observed lack of scientific knowledge about breeding.

Tanwar (2011), Regarding breeding, main constrains were inadequate availability of breeding buck, lack of knowledge about breeding practices and indiscriminate breeding practice. Main constraint faced by 78.75% goat farmers followed by marketing, health and breeding by 77.50, 74.25 and 71.11% farmers, respectively.

#### 4.3.2.3 Lack of technical guidance

From the above table 9 and depicted fig 14 it was revealed that, the constraints faced by majority of goat keepers in very small and small group (100%) followed by medium (83.33%), and large (80.00%), medium (100%) and small (83.87%). The overall 90.83 per cent of goat keepers were observed lack of technical guidance.

The present result were in conformity with the observation reported by Tekale *et al.* (2013), concluded that, goat keepers needed training on feeding and health care management to a greater extent to improve the production potential of goats.

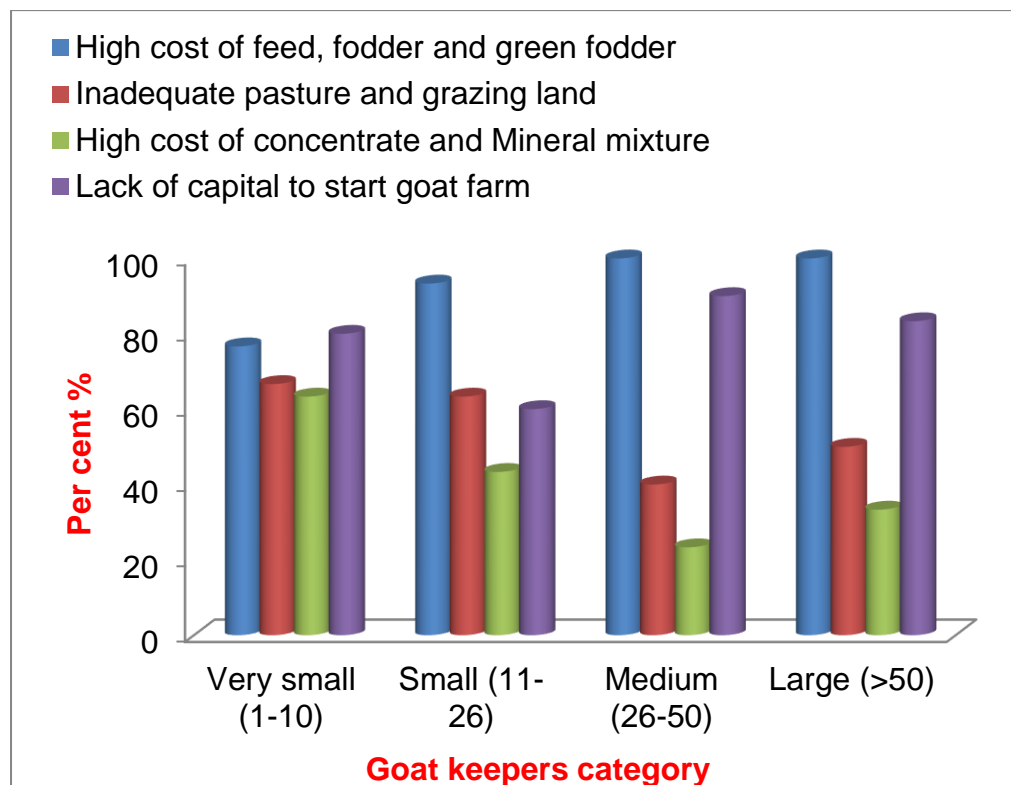
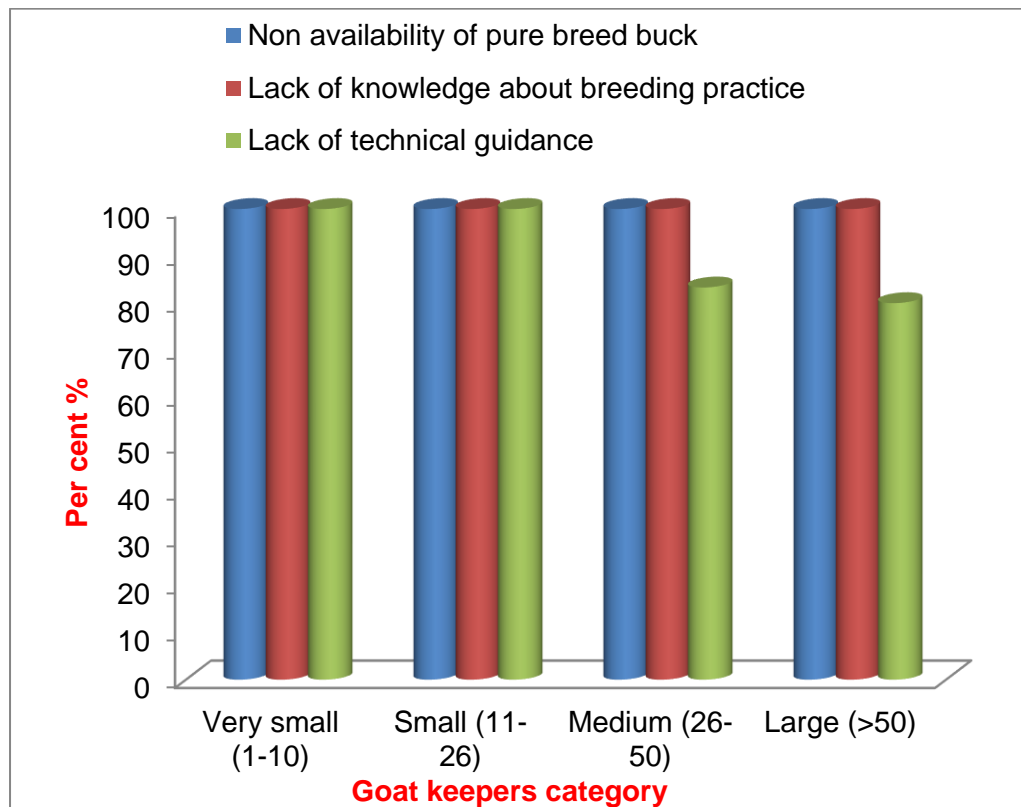


Fig 13. Constraint faced by goat keepers in feeding practices



**Fig 14. Constraint faced by goat keepers in breeding practices**

### 4.3.3 Housing management

#### 4.3.3.1 Inadequate space of tying pregnant animal

From the above table 9 and depicted fig 15 it was revealed that, the constraints faced by majority of goat keepers in very small and small, small, medium and large group of goat keepers were (86.66 %), (60.00%), (50.00%), and (96.66%) respectively. The overall 73.34 per cent of goat keepers were observed inadequate space of tying pregnant animal.

Tudu and Roy (2015), results indicated that the rainy season were highest represent equal 14% followed by inadequate veterinary services (12.66%), lack of house for goat (11.33%), housing problem in winter season (10.66),

#### **4.3.3.2 Lack of knowledge about housing management**

From the above table 9 and depicted fig 15 it was revealed that, the constraints faced by goat keepers were lack of knowledge about housing management faced by majority of goat keepers in very small, small group was (100%) and (93.33%) medium, and (96.66%) large group of goat keepers. The overall 97.50 per cent of goat keepers were observed lack of scientific knowledge about housing management.

Jana *et al.* (2014), most of the goat keepers (90%) reared their animal following semi-intensive system in Kachcha houses (69.33%) which constructed separately with locally available low-cost material. Floor of goat shade in most of the cases (56.67%) was earthen and roof had traditional that (56.67%).

#### **4.3.3.3 Non availability of loan facility**

The result as evident from the Table 9 and depicted fig 15 revealed that, the major constraint faced by the keepers was lack of loan facility. Majority of goat keepers of small (100%), followed by large group (96.66%), medium (93.33%), and small (83.33%) group were faced problem of lack of loan facility. The overall 93.33 per cent goat keepers observed problem of lack of loan facility.

Narmatha *et al.* (2013) The major constraints perceived by the goat farmers were exploitation by middlemen (88.57 per cent), complicated loan getting/sanctioning procedure (87.86 per cent).

#### **4.3.4 Health care practices**

##### **4.3.4.1 Lack of knowledge about health care practices**

From the above table 9 and depicted fig 16 it was revealed that, the constraints faced by goat keepers were lack of knowledge about health care faced by majority of goat keepers in very small, small group medium and large group was 66.66%, 50.00%, 53.33% and 30.00 per cent respectively. The overall 50.00 per cent of goat keepers were observed lack of scientific knowledge about health care practices.

Thombre *et al.* (2010) The category wise adoption index was presented in which breeding practices for goat obtained more adoption index (66.89) followed by feeding practices for goat (45.48) and health care practices (32.55).

#### **4.3.4.2 Inadequate veterinary aids**

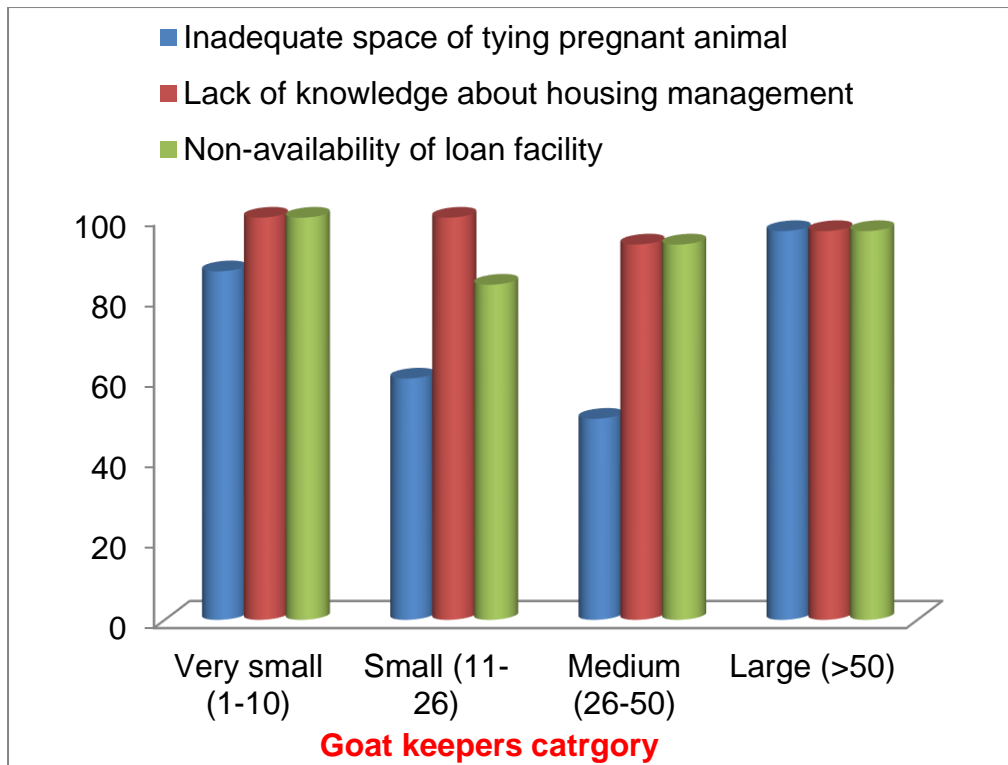
Better management and health care of animals is paramount for higher productivity. It was apparent from the table 9 and depicted fig 16 that, the veterinary hospitals are ill equipped, lacking facilities for treatment, vaccines and medicines. Majority of goat keepers in verysmall, small medium and large size with 70.00 per cent, 93.34 per cent, 73.33 per cent and 70.00 per cent respectively. The overall 76.66 per cent crossbred goat keepers were faced problem of non-availability of veterinary care hospital.

Thombre *et al.* (2010), Non-availability of veterinary services in the village in time (80.55%) followed by costly veterinary services (76.38).

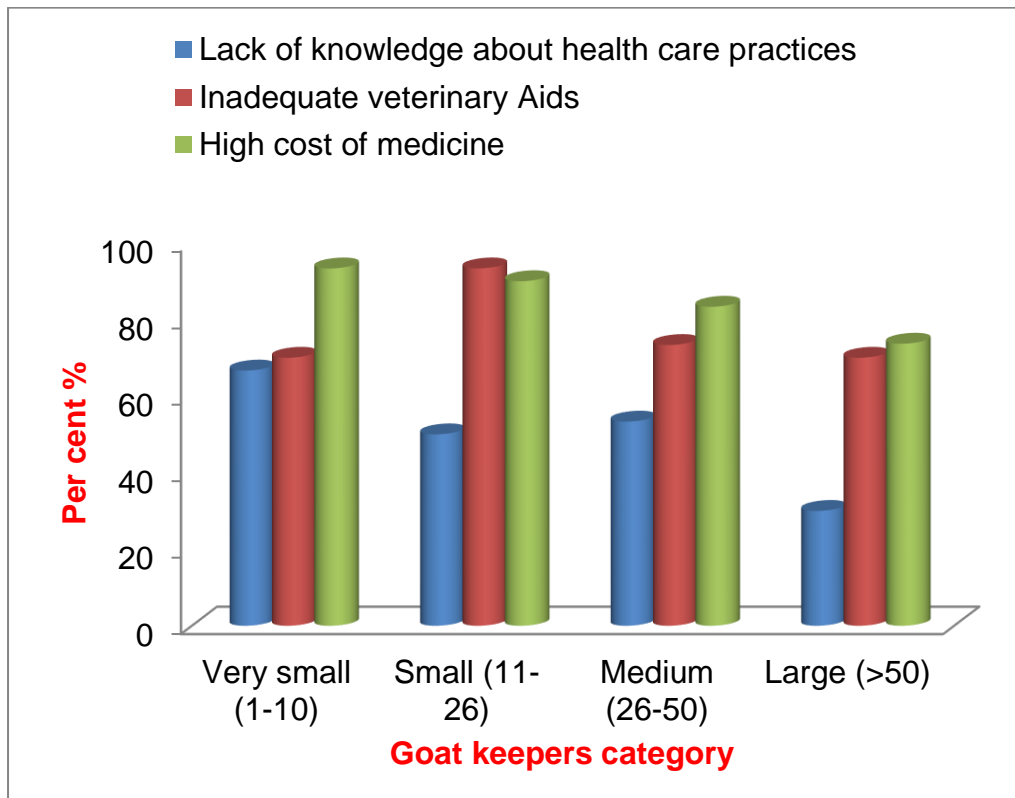
#### **4.3.4.3 High cost of medicine**

From the above table 9 and depicted fig 16 it was observed that, the constraints of goat keepers were high cost of medicine faced by very small, small, medium and large was 93.33%, 90.00%, 83.33%, and 73.67% respectively. The overall 85.83 per cent goat keepers owners faced problem of high cost of medicine.

Thombre *et al.* (2010), costly veterinary services (76.38) inadequate and untimely loan supply (68.05%) were major problems faced by the goat keepers.



**Fig 15. Constraint faced by goat keepers in housing management**



**Fig 16. Constraint faced by goat keepers in health care practices**

## Chapter V

### SUMMARY AND CONCLUSIONS

The goat rearing and management practices are directly concerned with milk production and it affect it largely. Hence, special attention towards these practices is advisable and it is necessary to meet the requirement of the growing population of India. Therefore, it is essential to investigate the level of adoption of respect of rearing and management practices, constraints in the scientific adoption rearing and management practices encountered by goat owner owners.

Goat rearing is a subsidiary occupation in rural India. A large section of people is engaged in rearing goats, belonging to poorer section of rural community i.e. small, marginal and landless labourers.

The study of knowledge and adoption of goat rearing management practices, constraint faced and suggestion made by them was undertaken. It is entitled as “**Adoption of Goat Rearing Practices In Risod Tahsil of Washim District**”. The specific objectives were:

4. To know the socio economic profile of goat keepers
5. To study the goat rearing practices followed by goat keepers
6. To study the constraints

The Risod tahsil comprises 100 villages, out of which 6 villages were randomly selected. A sample of 120 goat keepers was purposively selected from 6 villages of Risod tahsil of Washim district.

The survey was carried out in Risod tahsil, by selected 120 goat keepers on the basis of highest population (very small, small, medium and large). Thus, the total of 120 goat keepers from six villages (20 each village) constituted the sample for the study. The goat keepers were personally interviewed and the data collected were processed and analysed by using appropriate statistical method.

## 5.1 Summary

Majority (49.16 per cent) of goat keepers belonged to middle age category, whereas 30.00 per cent goat keepers belonged to old age category and 20.84 per cent goat keepers belonged to young age category.

Considerable majority (39.16 per cent) number of goat keepers had illiterate level of education, followed by 30.84 per cent goat keepers had middle & above level of education and 30.00 per cent goat keepers had primary level of education.

Majority (43.34 per cent) of goat keepers belong to category of small family size followed by large family size (31.66 per cent) and large family size (20.83 per cent).

Majority (29.18 per cent) of the goat keepers had landless followed by 29.16 per cent had marginal, 25.00 per cent had small and 16.66 per cent goat keepers found from large size of land holding.

It was observed that, the 40.83 per cent goat keepers belonged in high level of knowledge category followed by 35.83 per cent medium, and low 23.33 per cent level of knowledge category.

It was observed that, the 42.5 per cent goat keepers belonged in medium level of adoption category followed by 31.66 per cent high, and low 25.83 per cent level of adoption category.

The survey was carried out in Risod tahsil by selecting 120 goat keepers.

In feeding practices majority goat keepers generally followed only grazing (84.16%). Feeding of green fodder 22.50 per cent, dry fodder 15.83 per cent. Additional ration to pregnant doe feed 26.66 per cent, feeding common salt 36.66 per cent and feeding concentrate 13.33 per cent. The processing of concentrates before feeding was followed by 20.83 per cent goat keepers. While none of the goat keepers stall feeding. While none of the goat keepers were use of mineral mixture or mineral brick.

However, 36.66 per cent goat keepers feeding unconventional roughages and concentrates during scarcity. The feeding of concentrate mixture separately used by 28.34 per cent goat keepers and feeding with roughages were followed by 71.66 per cent goat keepers.

In management practices related to breeding all of the goat keepers goat keepers adopt natural breeding While none of the goat keepers were adopt artificial insemination and cross breeding. However, 59.16 per cent and 71.66 per cent goat keepers adopted care after service and drying milk at advanced stage of pregnancy respectively.

In animal housing management mostly of goat keepers adopted maintain shed in clean condition, provision of adequate light and ventilation, separate arrangements for kids and buck and providing clean drinking water with (45.83%), (47.50), (50.83%) and 45.000 per cent respectively.

In management practices related to health care and sanitation majority of goat keepers adopt control of external parasite 33.33 per cent, followed by vaccination 25.00 per cent and washing of goat only 14.16 per cent. While none of goat keepers adopted deworming of goat.

The constraints faced by goat keepers in adoption of goat rearing practices were classified mainly in four groups like feeding, breeding, housing and health care etc.

Feeding practices constraints involved high cost of feed, fodder and concentrate (92.50%), inadequate pasture and grazing land (55.00%), high cost of concentrate and mineral mixture (40.83%) and lack of capital to start goat farm (78.33%).

Breeding practices constraints involved non availability of pure breeding buck and lack of knowledge about breeding practices was (100%) and lack of technical guidance 90.83 per cent.

Housing management practices constraints involved inadequate space of tying pregnant animal (73.34%), lack of knowledge about housing management (97.50%) and non availability of loan facility (93.33%).

Health care practices constraints involved lack of knowledge about health care practices (50.00%), inadequate veterinary aids (76.66%) and high cost of medicine (85.83%).

## **5.2 Conclusions**

- 1) Majority of the goat keepers under study were middle aged, illiterate with small size family.
- 2) All of the respondents were not adopted scientific goat rearing practices like, nutritional feeding, breeding, housing etc. However, near about cent per cent of the goat keepers adopted same type of feeding practices.
- 3) High cost of feed, fodder, concentrates and Technical constraints involved the lack of scientific knowledge and technical guidance.
- 4) Lack of breeding buck and most of goat keepers were adopting natural method of breeding. While none of goat keepers adopt artificial insemination and cross breeding.
- 5) All of the goat keepers adopted regular cleaning of shed. Majority of goat keepers were lack of knowledge about housing management and lack of loan facility.
- 6) Majority goat keepers having lack of knowledge about health care, followed by inadequate veterinary aids in rural area and high cost of medicine.

Hence, it is concluded that there is need to rearing management of goat on scientific line which includes, proper feeding, breeding,

housing and health care. So, regular training programs of goat owners in the area *viz.*, vaccination, deworming, fodder cultivation, AI etc. should be undertaken to make the dairy sector sustainable.

### **5.3 Suggestions made by the goat keepers to overcome constraints**

A majority of the goat keepers suggested that quality and improved breed of goat may be made available, provide information about new goat rearing management practice, thorough training may be given regarding the goat rearing management practices, medical treatment should be free of cost, provide time to time information of vaccination, veterinary services may be made available in village, provide time to time information of goat disease, shelter facility for goats may be provided at village level, giving complete information about management of pregnant does, provide information regarding care taking of kids, provide good quality breeding buck, concentrates should be made available in market at reasonable rates, credit facility should be made easier, provide proper markets information, Governments should give a better market price for goat, efforts should be made by government for complete destruction of middleman system.

## Chapter VI

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## VITA

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1	B.Sc. (Agri.)	2016	Second	P.D.K.V. Akola	Agriculture
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3	S.S.C.	2010	First	Amravati	General

- 6. Field of interest** : Agriculture research

**Place:** Nagpur

**Date:** /06/ 2019

**Signature of student**

**APPENDIX**  
**INTERVIEW SCHEDULE**

Thesis Title

**“ADOPTION OF GOAT REARING  
PRACTICES IN RISOD TAHSIL OF WASHIM  
DISTRICT”**

**Name of Researcher** :- Ambhore Vaibhav Pandit

**1. Name of the farmer** :-.....

**Education** :-.....

**Age** :-.....

**2. Name of village** :- .....

**Tahsil** :- Risod

**District** :- Washim

**3. Information about family** :-

Member	Male	Female	Children	Total
Number				

**4. Information about land holding:-**

Land	Cultivated land (Ha)	Irrigated (Ha)	Dry (Ha)	Fallow land (Ha)	Total land (Ha)
Hectare					

**5. Information about crops:-**

Sr.No.	Season	Crop	Area(ha)
1	Kharif		
2	Rabi		
3	Summer		

**6. Different Feeding practices adopted by goat keepers:-**

Sr.No.	Feeding practices	Yes	No
A	Grazing		
B	Stall feeding		
C	Grazing + stall feeding		
D	Feeding green fodder		
E	Feeding dry fodder		
F	Additional ration for pregnant doe		
G	Feeding of common salt		
H	Feeding of concentrate		
I	Processing of concentrate before feeding (crushing, soaking etc.)		
J	Use of mineral mixture or mineral bricks		
L	Feeding of concentrates mixture		
	Separate		
	With roughages		

**7. Breeding management practices adopted by goat keepers:-**

Sr. No.	Breeding practices	Yes	No
1	Artificial insemination		
2	Natural breeding		
3	Cross breeding		
4	Care after service		
5	Drying milk at advance stage of pregnancy		

**8. Housing management practices:-**

Sr. No.	Housing practices	Yes	No
1	Maintain shed in clean condition		
2	Adequate light and ventilation		
3	Separate arrangement for kids and buck		
4	Providing clean drinking water		

### 9. Health care management practices:-

Sr. No.	Health care practices	Yes	No
1	Washing of goats		
2	Control of external parasites		
3	Vaccination		
4	Deworming		

### 10. Constraints in feeding and management practices:-

Sr.No	Constraints	Yes	No
<b>A</b>	<b>Feeding practice</b>		
1	High cost of feed, fodder and green fodder		
2	Inadequate pasture and grazing land		
3	High cost of concentrate and Mineral mixture		
4	Lack of capital to start goat farm		
<b>B</b>	<b>Breeding practices</b>		
1	Non availability of pure breed buck		
2	Lack of knowledge about breeding practice		
3	Lack of technical guidance		
<b>C</b>	<b>Housing management</b>		
1	Inadequate space of tying pregnant animal		
2	Lack of knowledge about housing management		
3	Non-availability of loan facility		
<b>D</b>	<b>Health care practices</b>		
1	Lack of knowledge about health care practices		
2	Inadequate veterinary aids		
3	High cost of medicine		