



## APPRAISAL OF MANAGEMENT PRACTICES FOR SHEEP AND GOAT AT DISTRICT SHAHEED BENAZIRABAD

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### ABSTRACT

The objective of the present study was, small ruminant farmer in the rural Sindh is not getting proper income due to farming on conventional methods and lack of awareness of livestock production techniques. Low profitability at farmers level may be attributed to poor flock management. Considering the significance of milk and mutton production from the small ruminant, the studies were carried out on the appraisal of traditional management practices for sheep and goat farming at in Shaheed Benazirabad. The present investigation indicated that nearly 40% of the small ruminant production farmers were uneducated. The farmers were of the middle age groups having plenty of rearing experience. Mostly landless people are involved in the goat/sheep farming. The farmers mainly reported occurrence of bacterial, viral, nutritional and managerial diseases in their flocks. The flock size was ranges from 25-50 to above 100 animals at different farms. Nearly, 60% of farmers earned 5 lack annual income from their small ruminant production. Majority of the goat/sheep producers (85%) maintained their flocks on grazing and 15% disclosed their animals do not depend on grazing. Wheat and concentrate, gram and concentrate and cotton seed cake were the common feed materials given to goat/sheep flocks by the herders. Lucern and Berseem were the major green fodder preferred by goat/sheep producers. Jan-April is the breeding period reported by owners. Majority of the herders use ethno-veterinary treatment either allopathic veterinary treatment is expensive and do not contact any veterinary doctor for treatment of their sick animals.

## 1. INTRODUCTION

Livestock contributed to agriculture value added stood at 58.6 percent while it contributes 11.6 percent to the national GDP during 2015-16. Gross value addition of livestock has increased from Rs. 1247 billion (2014-15) to Rs. 1292 billion (2015-16), recorded an increase of 3.63 percent as compared to previous year.

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previous year. According to the latest Economic Survey of Pakistan (2015-16) the goat and sheep production was 70.3 and 29.8 million heads (GOP) [9]. Small ruminants have historically emerged as a preferred subsistence-oriented livelihood choice particularly in the rural areas of Pakistan. Mostly they are managed under conventional practices and due to lack of resources the farmers do not invest much on improved management of goat and sheep (Arshad *et al.*) [4]. Mostly goat and sheep feed consist on plant species like forage crop. Due to increased animal population greatly from past five years in the region. Forages as well as their availability may be affected due to natural disaster and lack of local rangelands. Range resources have been depleted more visibly. Ultimately the animals get sick due to nourished, appetite and this results in low productivity in milk as well meat production under conventional management system. In case of traditional management system, small ruminants do not fulfill their requirement from rangelands (Wahid) [22]. These constraints in small ruminant's production greatly influenced the economic condition of the country (El-Hag *et al.*) [6]. It is prerequisite that the productive performance of goat and sheep is increased to meet the ever-increasing demand for animal protein. This objective is only achieved by increasing the survival of kids and lambs as these constitute the future flocks. The maturity of kids and lambs on time has become a major problem and farmers face highly economic losses due to increased mortality. The reduction in mortality of kids and lambs can be reduced by identifying specific causes. Mostly diseases are the main causes of lamb or kid mortality i.e., Pneumonia, Enterotoxaemia, Foot and Mouth Disease, Diarrheas and endoparasites. The non-infectious conditions that can affect mortality include starvation, chilling exposure complex, stillbirths/dystocia, mismothering, low birth weight and immunity acquired by neonate through colostrum (Khan *et al.*) [10]. Under existing socio-economic situation, small ruminant holders are landless for fodder production, water shortage, increasing prices of fertilizers, unavailability of good quality seed and feed shortage for their animals. Therefore, sheep and goats have to obtain their feed from grazing. Shortages of feed continuously limit per animal performance. The main sources of fodder were lopped tree leaves, shrubs, harvested crop residues and local weeds on the banks of dry wetlands. The farmers felt difficulty to access veterinarian and lack awareness about the need and effectiveness of allopathic treatment although, animal health units have been established in all districts, but still the farmers rely on traditional farming system (Taye *et al.*) [20].

The small ruminant farmer in the rural Sindh is not getting proper income due to lack of awareness regarding recommended livestock production techniques that are essential for the profitable small ruminant production. Low profitability at farmers' level may be attributed to poor flock management, feed shortage, lack of breeding programs, weaker marketing infrastructure, lack of deworming and vaccination, high incidence of diseases, lamb/kid mortality, infertility, lack of capital and financial resources and unavailability of treatment. Considering the significance of milk and mutton production from the small ruminant, the studies were carried out on the appraisal of traditional management practices in sheep and goat farming at in Shaheed Benazirabad.

## 2. MATERIALS AND METHODS

The present study was carried out during the year 2018 on the appraisal of management practices for sheep and goat farming at Shaheed Benazirabad. Initially, the general information was obtained from different sources for physical situation of the study area. Prior to sampling, discussions were held with livestock experts in the district to make the clear purpose of study. Fields visits were made to gather pre-information and select the villages and thereby the household.

The selection of villages and farmers from each village was based on the selection of union councils or representative areas of the rural Shaheed Benazirabad district. The union councils (major representative areas) of rural Shaheed Benazirabad are mention in Table-I.

The research involved the task of figuring out research plans, selection of samples, data collection, tabulation and analysis of data and interpretation of results. Survey method has been proved successful in finding out generalization in the field of livestock management, it was imperative to explore and assess the present situation of goat and sheep production for the sake of assessment that it is extremely important rather demanding that an exploratory research study is designed to compose the clear picture of the present existing management system in different representative areas of district Shaheed Benazirabad.

The research was completed through a field survey by using well validated interview schedule. Required data were collected through field survey. To attain accurate and reliable data, care and caution were

taken in course of data collection. The farmers were asked questions in a face-to-face manner while door step. The data thus collected were subjected to statistical analysis using Statistic computer software.

**Table-I. Selection of goat/sheep farmers in below rural areas**

Union Councils	No. of villages selected	Farmers
Dour	5	10
Kazi Ahmed	5	10
Sakrand	5	10
Hussainabad	5	10
Jam Sahib	5	10
Gupchani	5	10
60 Mail	5	10
68 Mori	5	10
Joro Khan Shar	5	10
Total	45	100

### 3. RESULTS

The study was to identify the farmers' knowledge regarding small ruminant production in district Shaheed Benazirabad of Sindh province and to look into the aspects related to opportunities and constraints in sheep and goat production. The data thus finalized on education, livestock rearing experience, land holding, diseases and health related problems, flock size, annual income, grazing pattern, time of breeding and reasons for using ethno-veterinary medicines.

#### ***Educational status of small ruminant farmers***

The data collected regards to educational level of the respondents are presented in Figure-1. Majority (40%) of the respondents in study area were found to be illiterate, 20% could only reach primary school education, 10% middle school education, 20% respondents completed their education upto matric level. Only 8% could enter college level studies (inter); while 2% of household were graduates in the study area.

#### ***Livestock rearing experience of respondents***

The Figure-2 indicates the responses of respondents regarding their farming experience. The majority of the respondents (50%) had more than upto 10 years rearing experience; while 30% of the respondents possessed rearing experience of 10-20 years; however, 15% and 5% of the respondents having

rearing experience of 20-30 years and 40 years & above.

#### ***Land holding***

The information in relation to land holding is showed in Figure-3. The data exhibited that majority of the respondents in the study area did not possessed land (60%) for livestock grazing, while 20% and 10% of the small ruminant production farmers possessed land in the range of 5 and 5-10 acres, respectively.

#### ***Diseases and health related problems***

The perception of respondents regarding the health problems and diseases of small ruminant production in study area were evaluated and data showed in Figure-4. The majority (16%) of the respondents reported fasciolosis as a major threat for illness in small ruminant production, while, 15% of them reported pneumonia problem, 12% farmers reported bloat problems, 11% farmers was opinion that pox was the major threat for illness. 10%, 8%, 7%, 7%, 6% and 5% farmers reported enterotoxaemia, endoparasites, myasis, diarrhea, ectoparasites and FMD problem in their animals, respectively. Moreover, 2% and 1% of sheep and goat farmers was opinion that indigestion and mastitis was the major threats for illness. None of them were reported shedding of wool/hair for illness in small ruminant production in the study area.

#### ***Flock size***

The flock size of goat/sheep farms in the surveyed areas was enquired and data showed in Figure-5. Majority of the goat/sheep flocks (40%) consist upto 25 animals; and 30% goat/sheep flocks consist of 75-100 animals. The data further showed that 25% goat/sheep producers owned flocks consist of 25-50 animals and only 5% flocks comprised of above 100 animals. The data clearly indicated a varied size of flocks at different farms examined in the surveyed area.

#### ***Annual income of the goat/sheep producers***

The goat/sheep producers selected as respondents for this study were categorized according to their annual income (as they reported) and such data are recorded in Figure-6. The annual income of the 60% goat/sheep producers was in the range of above 5 lack rupees; and 20% goat/sheep producers earned annual income in the range of 4-5 lack rupees. Rupees 3-4 and 1-3 lack annually were earned by 15

and 5% goat/sheep producers. None of them earned less than 1 lack rupees from sheep/goat farming in the study area.

#### ***Grazing pattern***

A high majority of the goat/sheep producers (85%) in district Shaheed Benazirabad maintained their flocks on grazing and 15% disclosed that their animals do not depend on grazing shows in Figure-7.

#### ***Concentrate feeding pattern***

The data in Figure-8 indicates that majority (70%) of the small ruminant farmers fed their animals wheat and concentrate in addition to grazing, while 10% and 5% respondents fed with garam and concentrate and cotton seed cake in addition to grazing, respectively. For their animals.

#### ***Green fodder feeding pattern***

Feeding Lucern was in practice of majority of the goat/sheep producers (25%) in district Shaheed Benazirabad (Figure-9); followed by Berseem (20%), Jantar (15%), Matri (12%), Maize (10.00%), Bajra (8%), Brassica (5%) and Jowar (5%), respectively.

#### ***Time of breeding***

The goat/sheep producers in Shaheed Benazirabad district were enquired for the time of breeding in their goats and sheep and their responses (Figure-10) showed that most of the animals (55%) bred in April, followed by April (40%), February (3%) and January (2%). None of them bred their animals during May-December.

#### ***Reasons for using Ethno-veterinary medicines***

Out of 100 owners adopted ethno-veterinary medicines for treatment of their sick animals (goat and sheep) were further enquired for the reasons of using such traditional methods of treatment and their responses are given in fig. 11. Majority of the former's producers (35%) complained that ethno-veterinary medicines are more effective than allopathic veterinary treatment, 30% argued that ethno-veterinary medicines have no side effects on animal health; while (15%) argued that allopathic veterinary treatment is expensive. However, 10% of the small ruminant farmers gave reason for ethno-veterinary treatment that allopathic veterinary treatment has adverse effects on animal health. 10% of the respondents said that access to allopathic treatment is difficult/not available that's why they are

used to of getting their sick animals treated by ethno-veterinary medicines.

## **4. DISCUSSION**

Small ruminants contribute to human welfare in a variety of ways. The major ones being that they are source of food (milk and meat), livelihood, and source of manure. Furthermore, small ruminants can be raised with low feed requirement, are ease to handling and have quick return to reproduction (Farooq et al.)<sup>[7]</sup>. They are easily sold to raise the money to replace large ruminants, to pay loan, to purchase household equipment and other farm inputs, school fee for children and generally used to solve immediate problems. Due to the low government allocation and budgetary constraint, the development of the livestock industry and the welfare of farmers are badly affected (Muhammad et al.)<sup>[12]</sup>.

#### ***Educational status of small ruminant farmer's***

Traditional farming can only be replaced with the advanced profitable livestock farming, if the educated farmers take interest in this field of business. Positive association of adoption with the education level of the growers has been found and an educated grower will easily adopt the innovations and developments in livestock and accept the ideas as compared to uneducated farmer. Although education enables individuals to gain knowledge and skill and thus increases their power of understanding, it seems that experience rather than education, helps the stock owners in their managerial ability (Muhammad et al.)<sup>[12]</sup>. The situation was not so promising among the respondents in the Benazirabad district of Sindh in regards to their education level. Nearly 40% of the small ruminant production farmers in the study area either were uneducated or had only primary school education. The figure suggested that the rural people in study area are lacking educational motivation and the situation to this effect is not encouraging. Education is relevant if farmers are to access and apply livestock technology appropriately (Ndamukong et al.)<sup>[13]</sup>. These findings are matching with (Parker et al.)<sup>[14]</sup>.

#### ***Livestock rearing experience of respondents***

Rearing experience plays vital role in decision making in relation to adoption of innovated livestock farming methods. The experienced and educated farmers never hesitate to adopt modern small ruminant production technologies. The goat/sheep farming conventional methods are adopted and rarely the scientific approaches of animal rearing were noticed. However, on the basis of their farming

experience they adopted the management they learned from their elders. Findings that individuals, mainly traders, civil servants and students are engaged in livestock rearing is an indication that small ruminant production is an occupation that could be practiced by all as it requires little expertise and skills in terms of husbandry practices. In this study most of the small ruminant production farmers were of the middle age groups having plenty of rearing experience. It was observed that there was plenty of farming experience with the respondents in livestock farming and they manage their goat/sheep on commercial purpose on the basis of their farming experience (Lengarite *et al.*)<sup>[11]</sup> reported that majority of the respondents having greater than 20 years' experience in livestock rearing is a clear pointer that it is an occupation that has strong socio-cultural lineage with the pastoralist because it is an occupation that is passed down from one generation to another.

#### ***Land holding***

In Benzirabad district small land holding respondents were in majority and big landlords were relatively in smaller number. The data indicated that mostly the landless people are involved in the goat/sheep farming in the study area, and generally the landlords or other business did not invest in this business. Controversial findings are supported by (Rajana *et al.*)<sup>[15]</sup> explained that the proportion of landless young was very low (6.3%). According to key informants, the number of landless young people involved in small ruminant fattening has been growing from time to time may be due to the market demand and high profit margin.

#### ***Diseases and health related problems***

The goat/sheep farmers were also enquired for the diseases generally prevail in flocks and other health related problems were assessed. Among diseases and disorders, the farmers mainly reported occurrence of enterotoxaemia, foot and mouth disease, pneumonia, endoparasites, myiasis, bloat and fasciolosis in their flocks; while ectoparasites, sore mouth, pox, diarrheas, mastitis, foot rot, indigestion, infection and shedding of wool/hair were also reported by some of the farmers. (Sisay *et al.*)<sup>[19]</sup> in all the study areas the provided veterinary services were only for vaccination and some therapeutic treatments against a

few common diseases like anthrax, pasteruellosis, and sheep pox. This was in agreement with the findings of a survey works conducted by (Arse)<sup>[3]</sup>. The same sources indicated that disease lower the productivity of animals and it may occur during feed shortage period and poor management of sheep. Feed shortage may predispose the animals to low disease resistance, due to distance, awareness and cost of veterinary service, farmers are lack in get veterinary treatment for their animals. No farmer reported any history or record of vaccination against diseases in small ruminants in the study area. Although a high majority of farmers claimed to be consulting veterinary doctors to treat their sick animals, the high prevalence of these conditions in this study area could be as a result of poor management and lack of veterinary health care given to the animals in those flocks. The doctors consulted may not necessarily be doctors but just veterinary staff (para-veterinary staff). This, thus, underscores the need for improved veterinary health care inputs which as reported by (Muhammad *et al.*)<sup>[12]</sup> in the study area, is grossly inadequate among farmers.

#### ***Flock size***

The data clearly indicated a varied size of flocks at different farms examined in the surveyed area. (Anaeto *et al.*)<sup>[2]</sup> reported that majority of the respondents (75%; 72%) had between 1 and 10 flock and herd size of sheep and goat, respectively.

#### ***Annual income of the goat/sheep producers***

Small ruminant production is an essential feature of the farming system. It plays significant roles, in nutrition and food supply as well as household cash income. Nearly, 60% of small ruminant farmers earned 5 lack annual income from their small ruminant production. Sheep and goats constitute a good source of family income and livelihood, assets and agricultural resources for smallholder farmers (Farroq *et al.*)<sup>[7]</sup>. This makes small ruminant farming an important and secured form of agricultural investment to the rural and urban farmers. This observation was further buttressed by (Devendra)<sup>[5]</sup> who reported that livestock and livestock products particularly from small ruminants accounted for 56% in value terms (income) in typical smallholder mixed farming settings. This again underlines the valuable contribution of small ruminants as income generating assets among smallholder livestock farmers (Garedaghi *et al.*)<sup>[8]</sup>. They

are kept mainly as a secondary investment and require minimal input. According to (Rajana et al.)<sup>[15]</sup> 40% of the total incomes of small holder farmers comes from the sale of sheep and goat. (Ahmed and Egwu)<sup>[1]</sup> from the results of the four agricultural zones in this study, the predominant reason for keeping sheep by majority of the farmers (54.5%) is as a source of money to supplement family income. Some (34.8%) of farmers kept sheep for use during traditional/traditional festivities and only 10% of the respondents actually raised sheep for direct consumption. (Parker and Townsley)<sup>[14]</sup>. Such animals are sold to raise money needed to pay off loan, purchase farm inputs like fertilizer and other household needs, replace large ruminants, even pay the school fees of children and to solve other immediate family needs.

#### **Grazing pattern**

Grazing is the common feed source for small ruminants in the study area. Communal grazing land, roadside grazing, riverside grazing and aftermath grazing are the major types of grazing for sheep and goats. A high majority of the goat/sheep producers (80%) maintained their flocks on grazing and 15% disclosed that their animals do not depend on grazing. (Sisay et al.)<sup>[8]</sup> the major type of herding management in the surveyed areas was free grazing. All the interviewed pastoralists replied that they herded their sheep and goat together with cattle. (Rajanna et al.)<sup>[15]</sup> reported that during the day, small ruminants were herded together with the other species. As children were the main source of labor for herding, there was no labor shortage in the study areas. (Saddiqi et al.)<sup>[16]</sup> on the other hand, 35.13% of the farmers allowed their sheep to roam and graze freely. This is characteristics of extensive system of management and in these situations; there is no input into feeding and veterinary health. (Singh et al.)<sup>[17]</sup> reported that small ruminants kept under traditional management system in which small ruminants are released for day-time grazing and are housed the night in a basic infrastructure make with the local material. They drink to the level of dams (44.6%), boreholes (33.3%) or well (16.6%). (Sisay et al.)<sup>[8]</sup> argued that majority (86.7%) of the respondents practiced the tethering (subsistence) system, 10% use free range (extensive) system, while 3.3% of them practiced the intensive system. (Singh et al.)

<sup>[17]</sup> reported the management systems practiced was semi-intensive (42%) and intensive system (20%). The semi-intensive system of management being more popular could be used to deduce that agro-pastoral farmers practice semi-intensive livestock production since they have homesteads, practice some crop farming and livestock rearing as this is a good opportunity for provision of housing and supplementary feeds.

#### **Concentrate feeding pattern**

Wheat and concentrate, gram and concentrate and cotton seed cake were the common feed materials given to goat/sheep flocks by the herders in District Tando Muhammad Khan. Ahmed and Egwu (2014) on the type of feeds offered to their sheep, it was found out that 36.91%, 43.08%, 32.73% and 32.35% of the farmers from the respective zones (Taye et al.)<sup>[20]</sup> indicated supplementing their animal feeds with mixture of concentrate plus hay, legume and crop residues. Additionally, fresh forage is also been cut (cut and carry) and fed to the animals especially during rainy season. This outcome suggests that the farmers have some knowledge of intensification of their stock, particularly since the practice of fattening of rams for future market sales is a common practice in the area (Arse 2013)<sup>[3]</sup>.

#### **Green fodder feeding pattern**

In this study, the Jantar and Berseem were the major green fodder species used by the goat/sheep producers for their animals in the study area. (Sisay et al.)<sup>[19]</sup> most of the respondents stated that the native pasture from the communal rangeland was the main source of feed for their animals. In wet season, about 90.0% of the respondents in each of the two zones used native pasture, while during dry season 85.8 and 63.3% of the respondents in Shinile and Jijiga, respectively used natural pastures. Crop residues were the only feeds used as supplements by pastoralists in Jijiga zone. During the wet and dry seasons in Shinile zone, 9.1 and 14.2% of the respondents, respectively used natural pasture plus crop residues.

#### **Time of breeding**

Jan-April is the period when the breeding in most of the goats/sheep herds occurs in the study area. (Sisay et al.)<sup>[19]</sup> reported that nearly 82 % of the

respondents in Shinile zone and 46% of those in Jijiga zone replied that they bred their sheep and goat during the wet season, while 15 and 18.3% of the respondents in Jijiga and Shinile zone, respectively bred their animals during dry season. About 39% of the respondents in Jijiga zone bred their animals all year round.

#### **Reasons for using Ethno-veterinary medic**

In this study, a high majority of the small ruminant owners using ethno-veterinary treatment of their sick animals argued that either allopathic veterinary treatment is expensive or access to allopathic treatment is difficult. So, there is need to keep the arguments and reasons of the herders in mind and the policies are formed accordingly. Even so, most small-holder farmers who desire to adopt modern practices of animal health care are constrained by lack of finance to seek consultancy advice from veterinary officers or perhaps, due to the unavailability of such officers in remote villages. However, certain problems faced by the local farmers who use ethno-veterinary approach to treat their animals. (Umunna *et al.*)<sup>[21]</sup> reported that the majority (95.0 percent) of the respondents had used palm kernel oil as a traditional technique for curing scabies in goat. Among the user-respondents, while majority (67.78 percent) claimed that the use of thyme, *Thymus vulgaris* [L], for curing internal worms in goat was a very effective indigenous technique. (Khan *et al.*)<sup>[10]</sup> reported that 61 percent of the respondents used fresh leaves are ground and applied to the wound and leaves crushed and water added; animal made to swallow mixture for bloat treatment and 74 percent of the respondent's used fruit is crushed and the fluid is applied to the eye, 88 percent of the respondents used grind fresh leaves of Aloe vera and add to drinking water for coccidiosis.

## **5. CONCLUSION**

It was concluded from the present study that, the owners of small ruminant production are uneducated, landless having plenty of livestock rearing practiced. Owners earned 4-5 lacks annual income from the livestock farming. Enterotoxaemia, foot and mouth disease, pneumonia, endo-parasites, myiasis, bloat and fasciolosis are the major threats, while ecto-parasites, pox, diarrheas, mastitis, foot rot, indigestion, infection and shedding of wool/hair are minor threats

in the study area. Shortage of feed/fodder, high fertilizer prices; financial stress, high diesel price, water shortage and lack of field implements that hinders sufficient fodder production are the major constraints as perceived by small ruminant owners in the study area. 100% households apply ethno-veterinary treatment because either allopathic veterinary treatment is expensive or access to allopathic treatment is difficult.

## **6. CONFLICT OF INTEREST**

All author have declared that there is no conflict of interests regarding the publication of this article.

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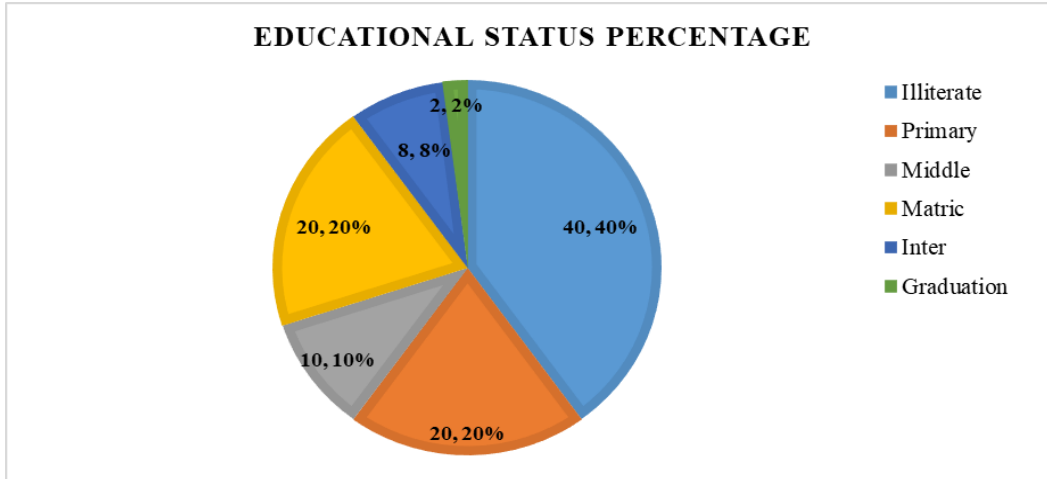


Figure-1. Educational status of small ruminant farmer's (n=100) in District Shaheed Benazirabad

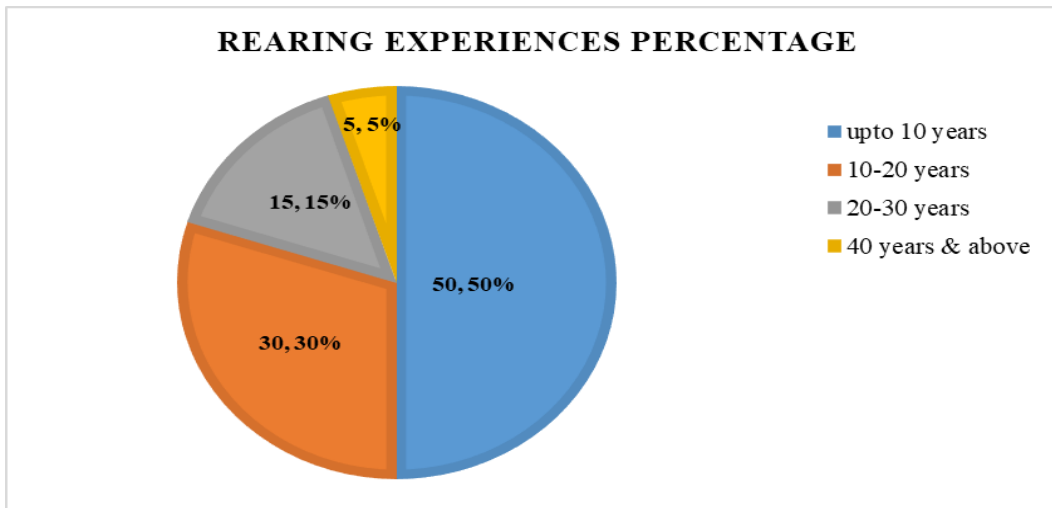


Figure-2. Livestock rearing experience of small ruminant farmer's (n=100) in District Shaheed Benazirabad

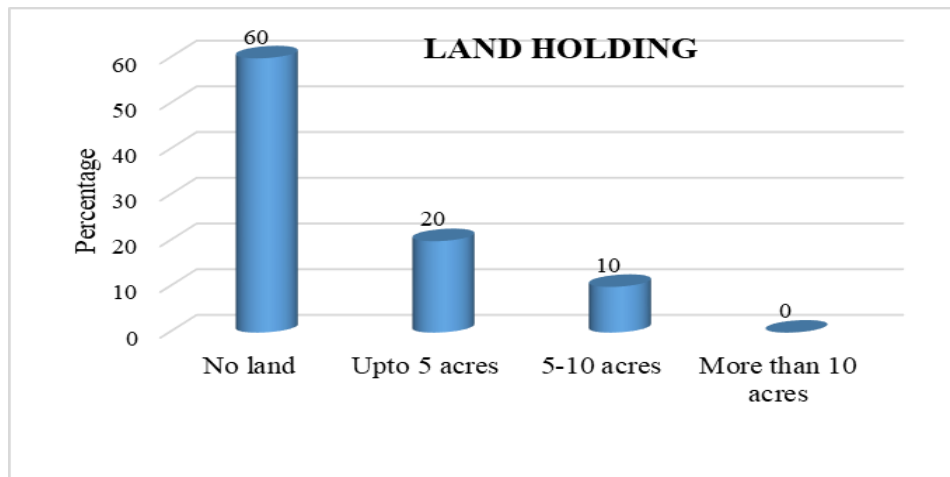


Figure-3. Land ownership status of small ruminant farmer's (n=100) in District Shaheed Benazirabad

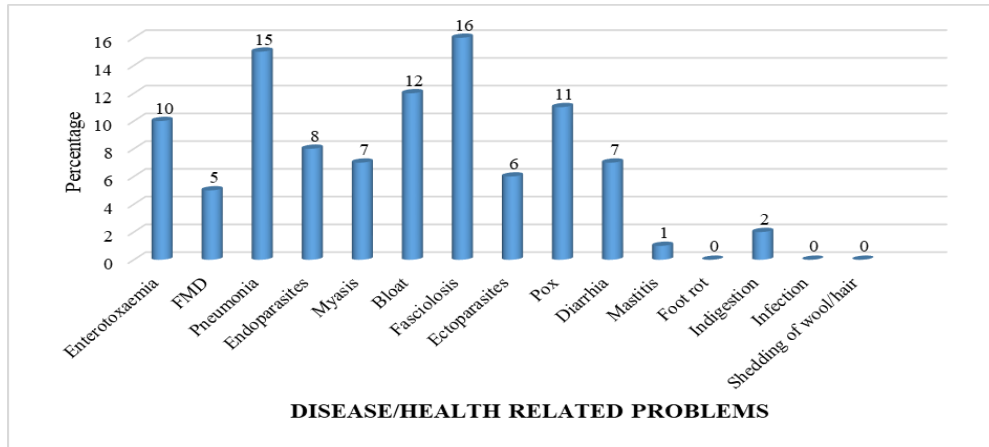


Figure-4. Perception of small ruminant farmer's (n=100) regarding diseases of small ruminant in District Shaheed Benazirabad

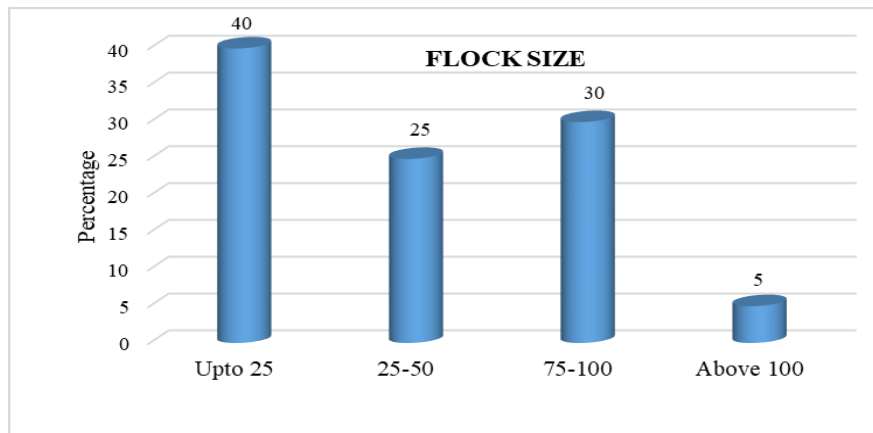


Figure-5. Flock size of goat and sheep herders (n=100) in study areas of Shaheed Benazirabad district

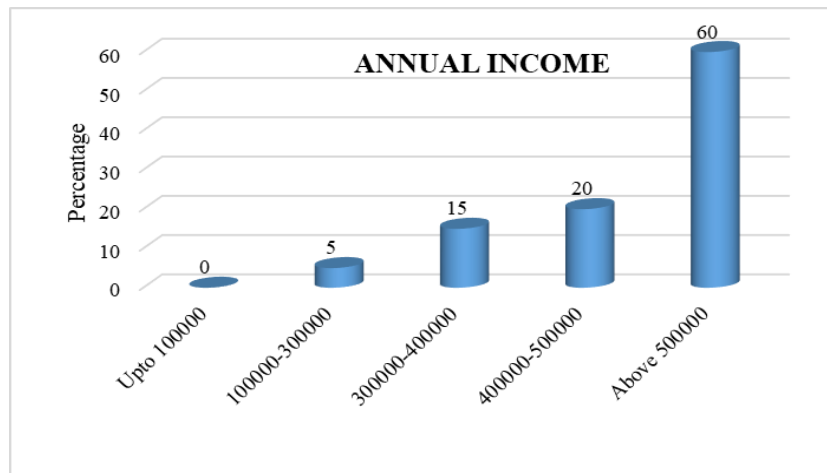


Figure-6. Annual income of small ruminant production farmers (n=100) of Shaheed Benazirabad district

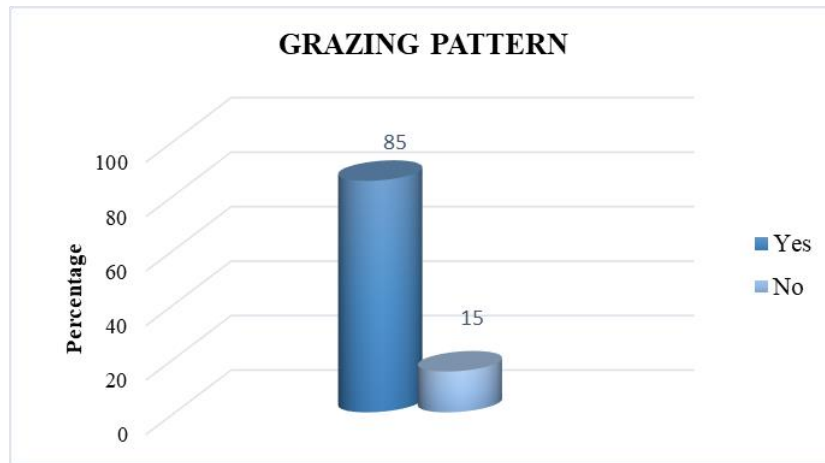


Figure-7. Grazing pattern of small ruminant production farmers (n=100) of Shaheed Benazirabad district

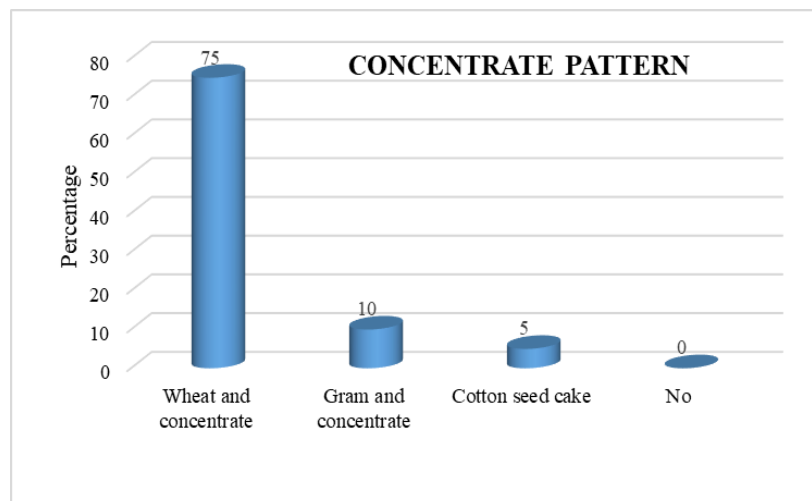


Figure-8. Concentrate feeding pattern of small ruminant production farmers (n=100) of Shaheed Benazirabad district

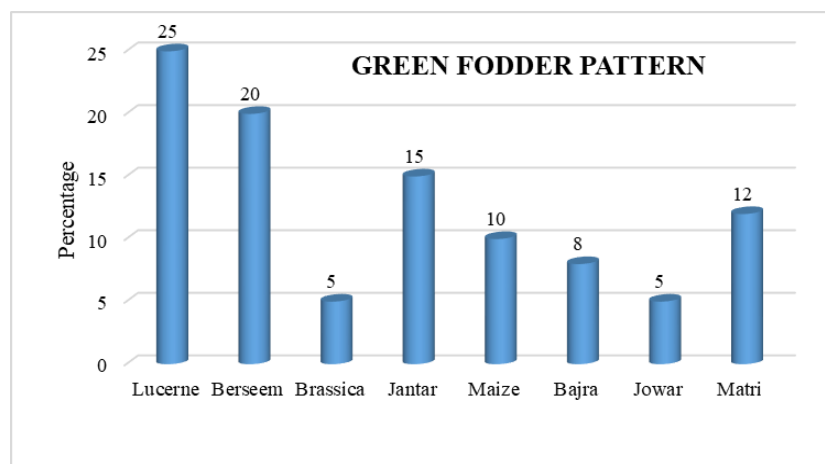


Figure-9. Green fodder given to goat/sheep by the farmers (n=100) of Shaheed Benazirabad district

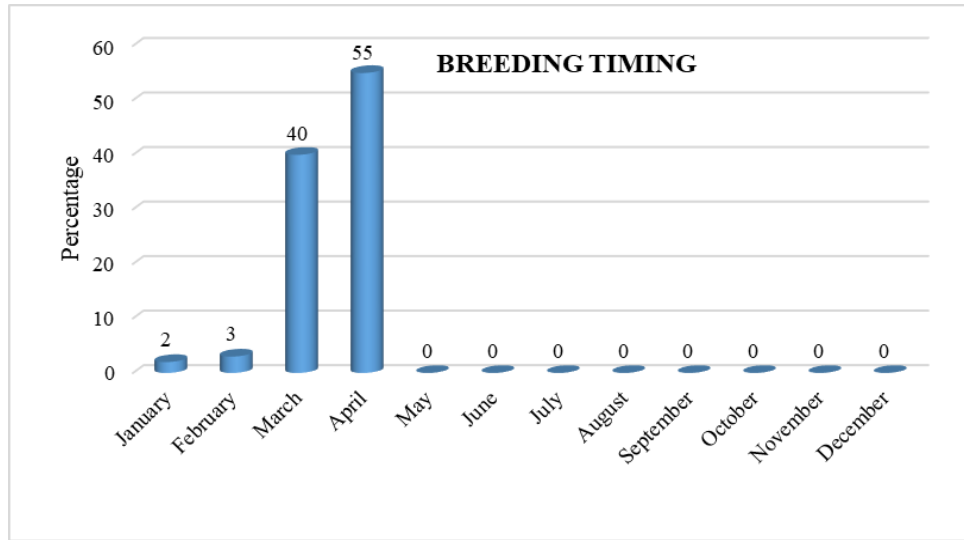


Figure-10. Time of breeding in goats/sheep as reported by small ruminant producers (n=100) of Shaheed Benazirabad district

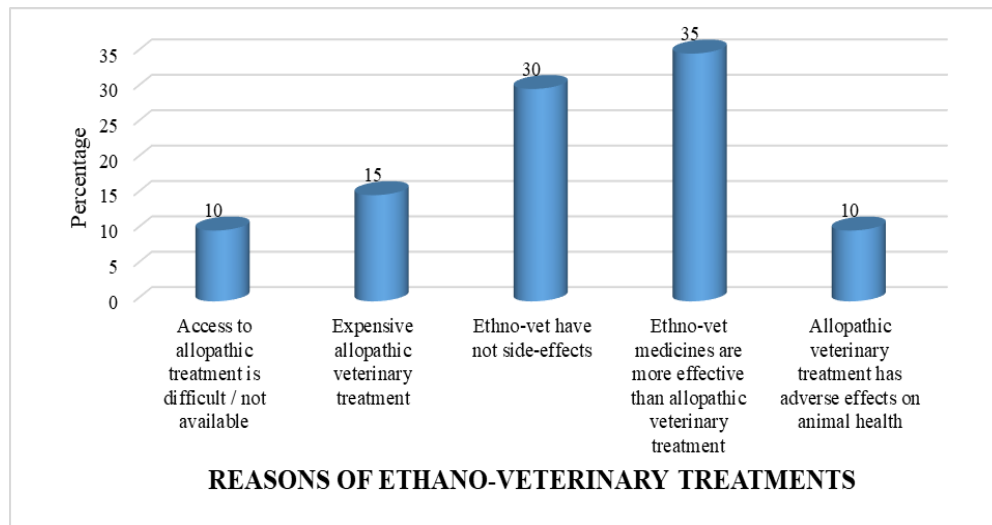


Figure-11. Reasons for using ethno-veterinary practices for various animal health problems in goats/sheep as reported by small ruminant producers (n=100) in Shaheed Benazirabad district