Socio-economic Landscape of Backyard Goat Farmers and their Husbandry Approaches in Zanjira Upazila, Shariatpur

By

Sydur Rahaman

Roll No: 18/10; Reg. No: 02067

Session: 2017-2018

Intern ID: 10

A Production report submitted with partial satisfaction.

Of the requirements for the degree of

Doctor of Veterinary Medicine

Faculty of Veterinary Medicine

Chattogram Veterinary and Animal Sciences University

Khulshi, Chattogram-4225, Bangladesh

August 2023

Socio-economic Landscape of Backyard Goat Farmers and their Husbandry Approaches in Zanjira Upazila, Shariatpur

---

Supervisor

Dr. Gous Miah

Professor

Department of Genetics and Animal Breeding

Faculty of Veterinary Medicine

Chattogram Veterinary and Animal Sciences University

Khulshi, Chattogram-4225, Bangladesh

August 2023

ACKNOWLEDGEMENT

From the onset, I extended my heartfelt gratitude to the Almighty for bestowing upon me the continuous blessings that have guided me through the entirety of this report, ensuring its completion with utmost ease and clarity. I would like to express my deep sense of gratitude and thanks to my honorable supervisor Prof. Dr. Gous Miah, Department of Genetics and Animal Breeding, CVASU for his skillful supervision and invaluable advice without which the successful culmination of this report would have remained unattainable. I am also expressing my earnest gratitude to Prof. Dr. Mohammad Lutfur Rahman, Dean, Faculty of Veterinary Medicine, Prof. Dr. Professor Dr. A.K.M.Saifuddin, Director, External Affairs and Prof. Dr. A.S.M. Lutful Ahasan, Vice-Chancellor, CVASU for the invaluable support, warm cooperation and insightful guidance throughout the entire duration of intern journey. And finally, I extend my heartfelt gratitude and deep sense of love to my beloved **MOM**, who, though no longer with us, remains an eternal source of love, strength, and inspiration.

The author

List of Abbreviations

Abbreviation	Elaboration
CVASU	Chattogram Veterinary and Animal Sciences University
DLS	Department of Livestock services
BBG	Black Bengal Goat
PPR	Peste des petits ruminants
et al	Et alia
etc.	Et cetera
NGO	Non-Government Organization

Table of Contents

List of Table

List of Figures

Abstract

A study was conducted Zanjira Upazila at Shariatpur district in Bangladesh to determine the socio-economic landscape of Backyard goat farming owners and their husbandry approaches. From eight distinct unions in the Zanjira upazila in the Shariatpur district, 50 goat-raising farmers were selected at random for the study. Based on the result, a significant portion of farmers in the study area reared Black Bengal Goat (BBG) (70%) in a semi-intensive system (82%). Most of the goat owners (68%) built tin roofed shed supported by local bamboo neglecting sufficient ventilation (82%) and without Macha (86%) while 90% goat keepers regularly clean their shed. The goat owners within the study area exhibited a prevailing trend of landless (58%), middle aged (62%), male (54%), house wife (42%), primary educated (52%) and start goat rearing without any initial training (84%) with their own capital (50%). Majority goat owners using bedding materials (80%) during winter, only small portion (36%) practice summer bath and night shelter in goathouse (64%), cattle house (22%) and household (14%). Most of the farmers (98%) supplied green grass along with concentrate while half of the farmers (54%) supplied cultivated fodder and remaining (46%) relied on roadside grass and crop weed supplementation. A significant portion (82%) use particular feeder for concentrate mixture supplied. Tube well is major source (82%) of water. Most of farmers (84%) have no access of grazing their herd. Without exceptional, all (100%) used Natural breeding with hired breeding buck (98%). Very few numbers (14%) follow regular vaccination while significant number (68%) regularly used anthelmintic. In this surveyed area, highly prevalent disease & disease conditions are Myiasis (30%), PPR (28%), Dog bite (22%) and Abscess (20%). This study also reviled that goat owners have some major problems, if this issues can be mitigated then goat owners can make money significantly which help our national economy.

Keyword: *Landscape, Backyard, Husbandry practice, Macha and Zanjira*,

Chapter-1: Introduction

Goats are frequently referred to as the "Cow of the less privileged," and they have acquired this title because of their crucial function as a sustainable resource for underdeveloped areas. They represent one of the first examples of interdependence between farm animals and humanity, serving as a dependable and valuable companion to humans (Islam *et al*. 2018). Goats have played a crucial role alongside humans ever since the beginning of agriculture and the domestication of animals. They are now recognized as important socioeconomic resources, providing a range of goods and services globally, especially in underdeveloped countries (Gamit *et al*. 2019). It served as a resource for humans throughout history due to its productivity, size, and food quality. Goats are raised by poor farmers in Bangladesh as a source of additional revenue and provide a major financial contribution to households' overall incomes in addition to their commercial worth (Islam *et al*. 2018). Since the beginning of civilization, goats have been an integral component of rural agricultural households, and due to their docile nature, women and children are comfortable handling them in addition to performing their normal labor. About 26.6 million goats (DLS, 2021) live in Bangladesh, most of which are Black Bengal Goats. The remaining varieties are Jamunapari and Cross. Over 90% of the nation's goats are cared for by rural communities. Goats are Bangladesh's second-largest livestock producer, providing 28%, 23%, and 28% of the country's total meat, milk, and skin production, respectively (Banglapedia, 2021). Goats stand out as a viable investment for the handicapped in a nation where about 29.4% of the people are poor. Goats provide an essential lifeline, especially for women, landless people, and small-scale farmers who live in remote areas (Paul *et al*. 1991). Interestingly, goats have a diverse economic impact on Bangladesh. Their function includes producing meat for human consumption, earning foreign exchange through the export of skins, reducing rural farmer poverty, fostering rural job possibilities, and empowering women by supplying them with a source of regular income (Samad, 2021). A proper intervention is crucial for increased goat productivity and marketing. Data are required for the present goat farming and administration system to accomplish these goals (Assan *et al.* 2014).

Agriculture is the main source of income in Zanjira Upazila, accounting for around 71.32% of the total income. About 1.80% of the total, which is a lesser percentage, comes from non-agricultural

work. Around 74.40% of the population is classified as a landowner in terms of land ownership, with the remaining 25.60% of people falling into this category (Banglapedia, 2021) within the Zanjira Upazila of Shariatpur District. Goat farming has become an important source of income for all walks of life, whether as a primary or secondary occupation. However, there is still a lack of information about the country of farmers today and their methods of animal husbandry. The goals of this study to examine the socioeconomic situation, identify key problems that goat farmers confront, and provide feasible solutions for increasing production effectiveness.

We hope to identify goat farmers' requirements through our research, as well as options that might lead to increased output. By achieving these objectives, this study hopes to provide direction for interventions targeted at improving management techniques and, as a result, raising goat productivity in the area.

Chapter 2: **Methodology**

2.1 Study Area

The current study was conducted at eight unions, namely B K Naga, Zanjira, Senerchar, Purbonawdoba, Palerchar, Mulna, Borokandi, and Boro Gopalpur under Zanjira upazila in Shariatpur district. It is located at the edge of Padma River between 23°16' and 23°27' north latitudes and in between 90°13' and 90°26' east longitudes. The Region's concentration of Goat farmers had a crucial impact in making the choices that led to the research location**.**

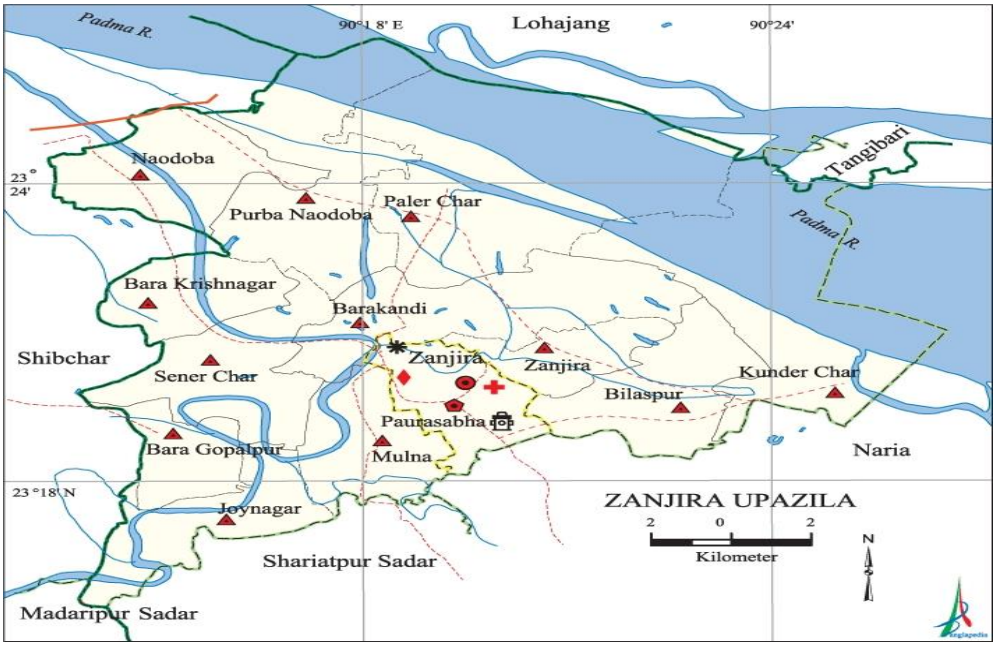

Figure 1: Zanjira Upazila (study area)

2.2 Sampling Technique

Data was collected employing a randomized direct interviewing approach to the traditional goat farmers, assisted by a well-designed questionnaire. The Questionnaire survey took place from April to May 2023. From each union, 4-6 farmer data was collected randomly. Farmers from throughout Zanjira Upazila come to the Upazila Veterinary Office for necessary veterinary care for their goats. During these trips, personal interviews were done with 50 farmers from various parts of the upazila.

2.3 Data Collection

The well-designed questionnaire was prepared for data collection which was done by personal interviews from the goat farmers. The main objective was explained before collecting data from farmers. A wide range of data was collected from farmers like farmers information including their ages, genders, occupations, education levels, farm sizes, land sizes, and household sizes, sources of capital and training about goat goat farming. Others data like goat breed, age, rearing system, grazing, housing system (shed, macha, ventilation, bedding material & night shelter) feeding system (source of feed, nutrition, fodder) , watering system, breeding system (insemination, source of buck, liter size & parity), and disease management like vaccination, deworming, the prevalence of diseases, and main problems in goat rearing. Some information, such as goat shed conditions, was gathered by visual observation of the farm and shed. In addition, supplementary data were collected from different sources like governmental records, pertinent literature, published works, academic journals, scholarly articles, and online resources. These data were collected during April-May, 2023.

2.4 Data analysis

MS Excel 2010 was used to assemble, tabulate, and analyze the acquired data to interpret the results. For the inquiry, descriptive data such as frequency and percentage were employed.

Chapter 3: Results and Discussions

3.1 Socio-economic Profiles of Goat Farmers

The investigation focused on the particular traits of individuals in a certain area, such as gender, age, level of education, occupation, land size (acre), source of capital and either have trained on goat farming or not.

3.1.1 Gender

The current study reveals a balanced engagement of both genders in Goat-rearing activities, with males and females contributing nearly similarly. Approximately 54% of the goat farmers surveyed were male, whereas 46% were female (Table1), primarily homemakers. Gamit *et al*. (2019) found that the majority of males in the Saurashtra area of India are engaged in goat farming, which is comparable to the current study. According to Naim *et al*. (2021), the majority of females in Mymensingh are engaged in goat husbandry. The preference for mostly parenting female goats is due to their controllable size and docile personality, which aligns them well for upbringing and additional earnings. However, it is worth noting that this pattern may vary depending on the geographical environment.

Table 1: Socio-economic profile of goat farmers (n=50)

Serial No.	Parameters	Frequency(n)	Percentage (%)
Sex	Male	27	54
	Female	23	46
Age	Young (up-to 35)	8	16
	Middle (35 to 50)	31	62
	Old (above 50)	11	22
Level of education	Illiterate	11	22
	Primary	26	52
	Secondary	12	24
	Higher secondary	1	2

Occupation	Farmer	18	36
	House wife	21	42
	Business	3	6
	Service	4	8
	Labor	4	8
Land size(Acre)	Landless (< 0.02)	29	58
	Marginal(0.02 to 0.2)	20	40
	Small (0.21 to 1)	1	2
Goat farming training	Trained	8	16
	Not Trained	42	84

3.1.2 Age

According to our findings (Table 1), the majority of goat farmers (62%) were middle-aged, ranging in age from 36 to 50 years, with the elderly (22%), and the young 16%, (up to 35 years) trailing behind. According to (Islam *et al*. 2018 and Naim *et al*. 2021) most of the farmers who raised goats were in their middle age, followed by older farmers and young farmers which is similar to this study. Tanwar *et al*. (2008) claimed that the majority of individuals in Rajasthan's over-60 age group choose goat farming since goats are easier to handle.

3.1.3 Level of Education

Education stands out as a key factor in shaping a better way of life through its socioeconomic impact. Farmers with greater educational attainment often have a considerable advantage over those with lower educational attainment, particularly when dealing with activities requiring technical expertise. In the study area, around 52% of farmers had a primary education (Class 1-5), whereas 22% were illiterate. Secondary education accounted for 24% of the population, with a modest 2% holding higher secondary credentials (Table1). According to Deshpande *et al.* (2010) majority of goat keepers have primary education levels which is consistent with this study. However, another study like Islam *et al*. (2018 and Naim *et al*. (2021) showed that most of the goat keepers are illiterate.

3.1.4 Occupation and Land size

Most of the Goat keepers in this study is Housewife around 42%, farmer 36%, labor and service 8%, and business 6% (Table 1). According to Naim *et al.* (2021) in Sylhet, the majority of goat keepers are housewives which is constant to this study. A significant 58% Fall under the 'landless' category, possessing less than 0.02 acres of land. The "marginal" group accounts for 38% of the total, with land ranging from 0.03 to 0.2 acres. Only 2% fall into the "small" category, which comprises land ranging from 0.21 to 1 acre (table 1).According to Rahman *et al*. (2017; Islam *et al.,* (2018) and Naim *et al.* (2021) majority of goat keepers are landless while very few have marginal land which is similar to our study Another study by Thombre *et al*. (2010) shows that marginal farmers are higher proportion

3.1.5 Source of Capital

The initial investment made by goat keepers to obtain their first group of goats to secure future revenues is acknowledged as their capital source. Inquiring into their financial management at the onset, we discovered that 50% of goat farmers start their businesses with their own capital, owing to the low cost of obtaining 2-3 animals. Among the remaining respondents, 28% obtain their cash through lending, while 20% rely on non-governmental organizations (NGOs) for loans. A measly 2% obtain bank loans to begin their goat-rearing activities. The major reason for this was that obtaining a bank loan was an extremely difficult process that required a large number of legal paperwork. Farmers favored NGOs over banks to obtain financing to begin goat farming. The Comparable outcomes were elucidated in a study by Islam *et al*. (2018) conducted in Sylhet.

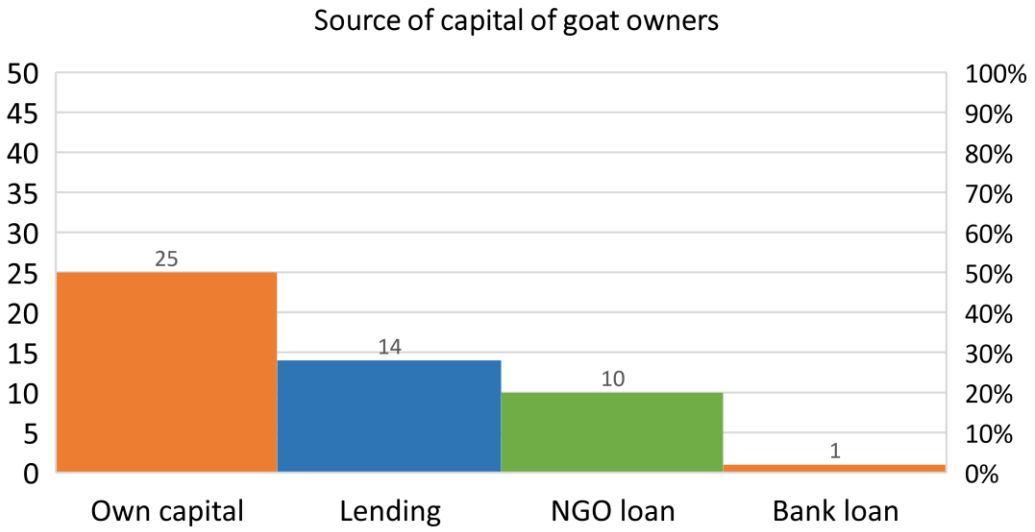

Figure 2: Source of capital of goat owners at study area

3.1.6 Training on Goat farming

A striking tendency occurs among goat keepers in the Zanjira region, with a considerable majority engaged in goat keeping without prior training. Approximately 84% of goat caretakers have had no formal education. Farmers think that there is no training required for goat rearing. In contrast, the Upazila Livestock Office and Veterinary Hospital organized a single-day training session for 16% (Table 1)

3.2 Husbandry Approaches

3.2.1 Housing system

Most of the farmers in Zanjira who were landless opted to make their farm sheds out of natural materials such as bamboo, wood, jute sticks, or even tin and straw over the top. 68% of the shelters have tin roofs supported by bamboo and jute poles, while 32% are made entirely of bamboo, straw, and sun grass. The remaining 2% is built with alternate materials such as concrete or earth (Table 2). According to Islam *et al*. (2018), most of the shed (54%) is made with tin in Sylhet due to its durability which is closely similar to this study.

Figure 3: Night shelter of goat at the study area

3.2.2 Macha and Ventilation

Macha is a native platform erected above the soil made of bamboo or wood that is used for sleeping or sitting. It helps urine and dung immediately fall down which results in the body being cleaned and less tendency to disease infections like colds, coughs, pneumonia, or skin diseases within the herd (Banerjee, 1980). However, in the context of Zanjira, Table 2 shows that barely 14% of goat keepers employ elevated platforms (Macha) within their goat sheds, while the majority, comprising 86%, do not adopt this practice. Furthermore, owing to a lack of good home design

planning, they failed to keep enough ventilation in the shed, despite the fact that it is critical for goat comfort. Table 2 revealed that just 18% of sheds had adequate ventilation, with the remaining 82% having poor ventilation. Islam *et al.* (2018) also showed that the majority of sheds lack of elevated platform (Macha) and sufficient ventilation facilities in Sylhet due to poor knowledge about goat farming.

Table 2: Housing system at study area.

Traits	Category	Frequency (n=50)	Percentage (%)
Type	Tin shed	34	68
	Bamboo straw made	15	32
	Soil and others made	1	2
Macha	Yes	7	14
	No	43	86
Ventilation	Sufficient	9	18
	Insufficient (poor)	41	82
Shed cleaning regularly	Yes	45	90
	No	5	10

3.2.3 Regular Cleaning

A clean goat shelter is essential for the goats' health and well-being. It lowers illness risks, enhances respiratory health, and creates a relaxing environment. Cleanliness promotes reproduction and productivity as well as efficient waste management and the prevention of pest infestations (Peacock *et al.*, 1996). Table 2 shows that 90% of goat keepers engage in daily shed cleaning, involving the removal of urine and feces while the remaining 10% rarely clean their shed. Islam *et al*. (2018) Reported that 79% of goat keepers clean their shed regularly which is nearly similar to this study.

3.3 Rearing system

According to Table 3, the data show a strong preference for the semi-intensive goat-rearing methodology, with 82% of farmers using this method. However, a lesser proportion of farmers

(18%) chose the confinement system. Notably, no participants stated that they used the free-range raising approach. According to the findings of Hossain *et al*. (2015) study, 80.5 percent of farmers grew goats in a semi-intensive system, whereas 7.3% used a confinement system and 12.2% used a free-range system. So both study shows majority of goat keepers follow the semi-intensive system. In the study area, people are mostly landless, so there is no option for the free-ranging system. Approximately 64% of farmers prefer to keep their goats overnight in goat houses, whereas 22% and 14% utilize cow barns and households respectively. Approximately 80% of goat caretakers use bedding materials to combat cold stress throughout the winter. Furthermore, approximately 36% of goat farmers conscientiously engage in the regular practice of washing their goats throughout the summer season, while the rest 64%, do not include routine summer bathing in their operations. As per Hossain *et al*. (2015), a significant majority of 75.6% of farmers housed goats in goat houses at night, 78% of goat raisers used bedding material, and 100% provided their Goat summer baths during the summer. According to Pattamarakha *et al*. (1997), the majority of farmers did not have goat shelters.

Table 3 : Goat rearing system at study area

Traits	category	Frequency (n=50)	Percentage (%)
Rearing system	Intensive	9	18
	Semi-intensive	41	82
	Confined	0	0
Bedding material during winter	Yes	40	80
	No	10	20
Summer bath	Yes	18	36
	No	32	64
Night shelter	Goat house	32	64
	Cattle house	11	22
	Household	7	14

3.3.1 Record keeping

Successful goat farming depends on proper record keeping of the herd. Figure 4 shows that only 21% farmers kept their herd record while most (79%) of them are ignored. Goat farmers generally kept birth, feeding, breeding & health record. Sarker *et al*., (2018) Reported that only 10% goat farmers kept record. Kumar *et al*., (2018) reported that 60% organic goat farming owner kept record of their herd while According to Hossain *et al*. (2015), only 3% keep record of their herd.

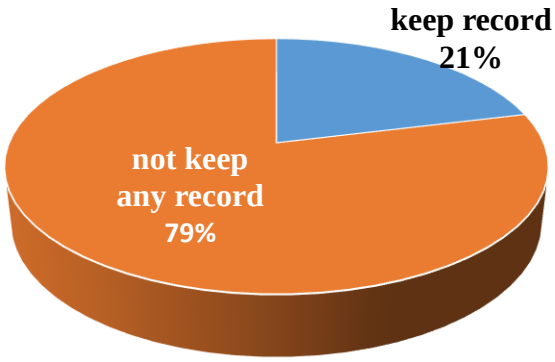

Figure 4: Number of owner keep record of their goat

3.3.2 Grazing

Only 16% goat keepers can graze their goat to pasture land or roadside grass while large number, about 84% goat owners have no opportunity to graze their goat as they have not any pasture land. According to Islam *et al.* (2018) most of the farmers have no grazing land which is consistence to this study.

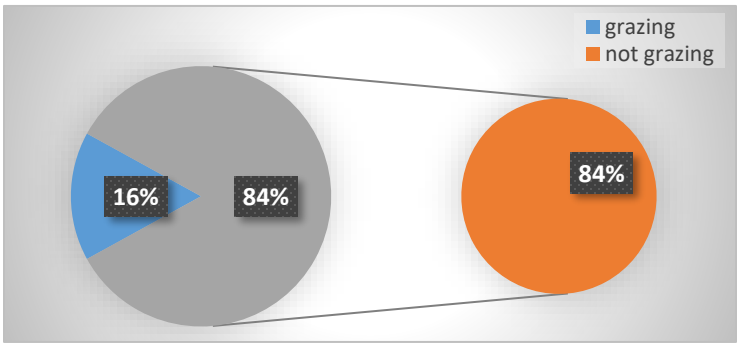

Figure 5: Percentage of owners who graze their animals in study area.

3.4 Feeding system and management practices

Table 4 shows that most of the farmers (98%) feed their goats green grass along with concentrate. Green grass, mainly roadside grass, crop weeds, cultivated fodders, and tree leaves. The majority (54%) use cultivated fodder while 46% feed Roadside grass & crop weeds. Concentrate feeding is mainly wheat bran rice polish, and broken maize. Wheat bran or rice polish mixed with rice gruel and supplied to goats which is a favorite for goats according to farmers. About 82% of goat keepers supplied concentrate mixture in the particular feeder for goats while 9% did not use a particular feeder. Without exception, all the respondent affirmed their commitment to providing regular access to water. 94% of goat owners, get their water from tube wells; the remaining 6% choose to get their water from ponds. During the rainy season majority (48%) supply only tree leaves along with wheat bran supplied by 14%. Only 38 % somehow manage green grass as they cultivate fodders. In the study conducted by Hossain *et al*. (2015) showed that most of the farmers (61%) supplied green grass to their goats. Kumar *et al*. (2018) reported that 49% of farmers used roadside grass and tree leaves and very minority used cultivated fodder which is contraindicated with this study

Table 4: Feeding system & management Practices of Goat in the survey area

Traits	category	Frequency (n=50)	Percentage (%)
feeding	Only green grass	1	2
	Green grass +concentrate	49	98
fodder	Cultivated	28	56
	Roadside grass + crop weed	22	44
Particular feeder for concentrate feeding	Yes	41	82
	No	9	18
Source of water	Tube well	47	94
	Pond	3	6
Raining season feed	Tree leaves	24	48
	Tree leaves + wheat bran	7	14
	Green grass	19	38

Figure 6: Feeding system of goat at study area

3.5 Breed

Figure 7 shows that most of the goat (70%) is Black Bengal while the remaining breed are Cross and Jumnapari 18% and 12%, respectively. Black Bengal is highly popular among farmers due to its high reproductive capacity and consumer demand for its meat. Islam *et al.* (2018) reported that the majority (74.6%) of Goat breed are black Bengal which line with this study

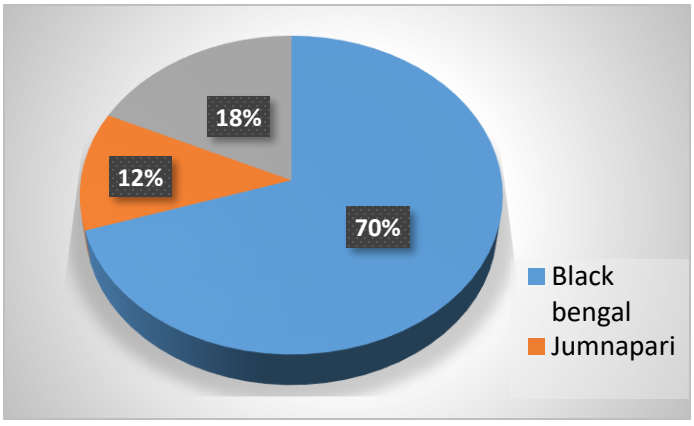

Figure 7: Available Goat breeds in Zanjira Upazila, shariatpur

3.6 Breeding system

Table 5 shows that all of the farmers chose natural breeding since artificial insemination services were unavailable in the study area. To increase the quality of the meat and increase profits, most farmers castrate male newborns the day after they are born (Naim *et al*. 2021). As a consequence,

(98%) of the buck were recruited by the farmers in the study area. The study by Naim *et al.* (2021) reported that 88% of bucks are hired and 12% are borrowed which results in inbreeding. According to Kumar *et al*. (2018) and Naim *et al* (2021), 100% of farmers used natural breeding which is consistent with this study. Islam *et al*. (2018) reported that 96.6% of farmers use natural breeding and the majority hire village buck.

Table 5: Breeding system in the study area

Traits	category	Frequency (n=50)	Percentage (%)
Breeding	Natural breeding	50	100
	Artificial	0	0
Keep buck	Yes	1	2
	No	49	98
Source of buck	Hired	49	98
	Own buck	1	2

3.7 Disease Prevalence

About fifty respondents were surveyed to learn about the prevalence of diseases at the study area. As a result, the following diseases prevalence percentages are high at the study area: Myiasis (30%), Peste des Petits Ruminants (PPR) (28%), Dog bite (22%) and Abscesses (20%). Myiasis, which is characterized by a fly larvae infestation, has the greatest prevalence rate. This could be attributable to certain environmental factors in the area that encourage the breeding of the responsible insects. PPR next highest prevalence rate due to infrequent practice of vaccination against PPR. Naim *et al.*, (2021) reported that skin disease and PPR are more common in

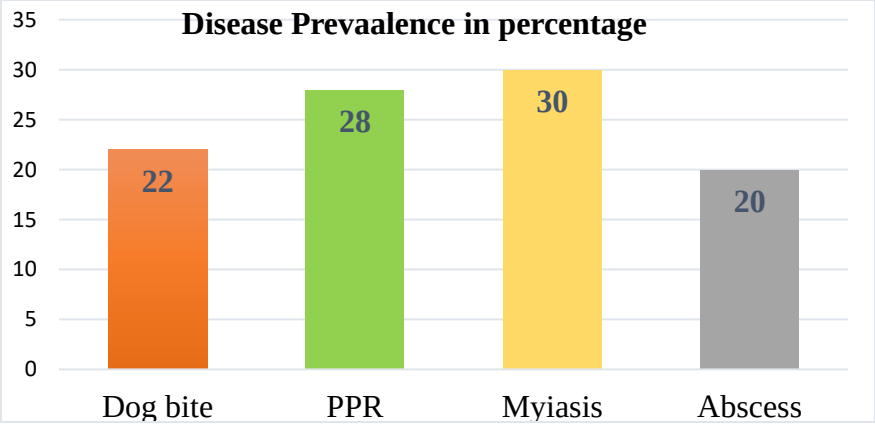

Figure 8: Disease prevalence of goat at survey area

Mymensingh District which line with our study. According to Hossain *et al*., (2015) majority number (32%) of Goat affected with PPR at southern region in Bangladesh.

3.7.1 Vaccination and Deworming

Prevention is better than cure. The only method to avoid disease on a farm is through vaccination (Naim *et al*., 2021). Figure 9 shows that a large number (86%) of goat farmers do not vaccinate their goats regularly while only 14% of farmers vaccinate their goats. Farmers have more serious cases of deworming issues, about 68% of farmers follow regular deworming schedules. Our results are nearly similar to those of Islam *et al.* (2016) who reported that 18.67% of farmers consistently vaccinated their goats whereas 58% of farmers did not practice. Just 8% of farmers, according to Islam *et al*. (2016), vaccinated their goats. Majority of the farmers not regularly vaccinate their goat reported by Naim *et al*. (2021)

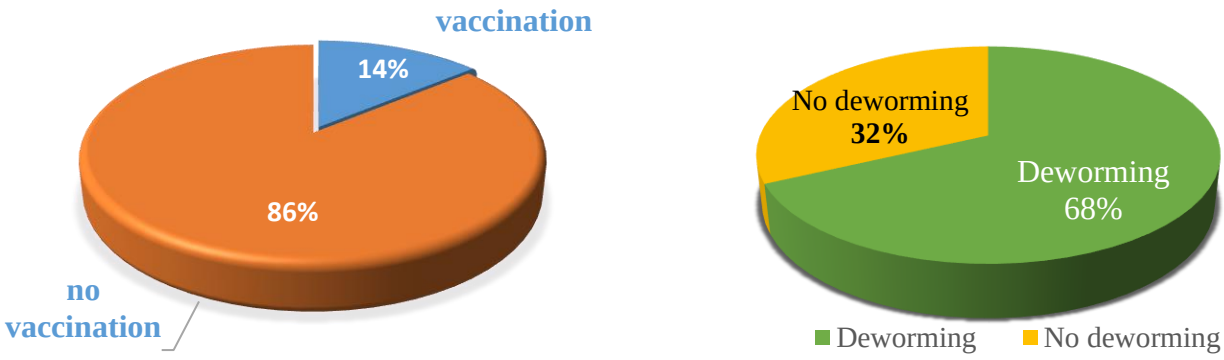

Figure 9: vaccination and Deworming profile of goat at study area.

3.8 Problem faced by the goat farmers

Table 6 showed that about 90% of Goat farmers reported a lack of veterinary services, 98% reported high feed cost, and 86% reported scarcity of both forage cultivation land and training on goat farming. About 80% of farmers reported problem in both the availability of feed and the complexity of NGO and bank Loan while 66% reported that diseases and dog bite is a major problem of goat farming. To enhance goat farming in the study area above-mentioned problems should be mitigated. Goat feed should be made easy excess and have to reduce the prices and also have to motive and improve awareness among the population. Training facilities & veterinary services should be increased and the complexity of NGO and bank loans should be made easier. According to Ali *et al*. (1987) and Hossain *et al*. (2015) high price and unavailability of livestock feed. Our study is consistent with Kumar *et al*. (2018), who found lack of veterinary service, training, awareness, and complexity of NGO and bank loans are major problems.

Table 6: Problem faced by goat farmers at study area

Serial No.	Problems	No. of respondents(n=50)	Percentages
1	Disease and Dog bite	33	66
2	Unavailability of feed	40	80
3	High feed cost	49	98
4	Lack of land for forage cultivation	43	86
5	Lack of motivation and awareness	35	70
6	Complexity of NGO & Bank loan	40	80
7	Lack of training	43	86
8	Lack of veterinary services	45	90

Chapter 4: Conclusions

The study was conducted at Zanjira Upazila in Shariatpur district to know the socio-economic landscape of the goat farmers, and their husbandry approaches and highlighting the problem they are facing consistently. According to the findings, most of the farmers rear Black Bengal goats without training in semi-intensive systems and are mostly middle-aged landless housewives who only have primary education. They start their goat farming with 2-3 goats mostly with their own money. The housing system is not well established according to the goat requirements. Most of the houses are built with tin, bamboo, straw, and sun grass without sufficient ventilation. Most of the goats can't be grazed due to a shortage of land. Furthermore, they depend on traditional feedings like roadside green grass and crop weed, wheat bran, and rice gruel. Now large numbers of farmers have started cultivating high-yielding grass to feed their goats. Without exception, all the farmers used natural breeding (NB) with hired bucks. Disease management practices of the farmers are not good as there four prominent diseases prevalence is high like Myiasis, PPR, Dog bite, and abscess. Very few farmers vaccinated their herd regularly while a significant number of farmers dewormed their goats regularly. Expanding goat farming has the potential to improve rural communities by addressing both protein shortages and economic problems. An essential strategy for promoting this advancement is the planning of regular training sessions. The emphasis of these seminars would be on teaching current methods of goat nutrition, breeding methods, successful management approaches, and the use of efficient disease control measures. By providing rural residents with such a thorough education, we may open the door to a future that is more wealthy and nourished.

Chapter 5: References

Ali, M.A. &Anwar, A.B.M.N. (1987). Cattle problem confrontation in a union of Mymensingh. Bangladesh Journal of Extension Education, 2 (1): 41-49

Assan, N. & Sibanda, M. (2014). Goat production in the smallholder section in the Matobo district in semi arid areas of Zimbabwe. Agricultural Advances. 3(8): 218-228.

Banerjee, G. C. (1980). A Text book of Animal Husbandry, 4th edition, Published by Mohan Primlami, Oxford and IBM Publishing Company. 66 janpath, New Eelhi 10001. Page 591

Deshpande, Sabapara G.P, Malik P.K, Sadana D K & Singh P K (2010). Morpho-metric characteristics of Surti goats and socio-economic status of Surti goat keepers .Indian Journal of Animal Sciences. 80(6): 575-577

DLS (2021). Livestock Economy at a Glance: 2020-2021. Available at: http://dls.portal.gov.bd/sites/default/files/files/dls.portal.gov.bd/files/a7c2c046_864e_41c5_adcc _c9858e bc7887/2021-08-18-05-41- 28ed36a96d0db342b627f416f5d1f97a.pdf

Gamit, V., Patbandha, T., Bariya, A., Gamit, K., & Patel, A. (2020). Socio-economic status and constrains confronted by goat and goat farmers in Saurashtra region. Journal of Entomology and Zoology Studies. *8*(1): 641

Hossain, M. S., Akhtar, A., Hossain, M. H., Choudhury, M. P. & Islam, F. (2015). Goat husbandry practices in Southern region of Bangladesh. Journal of Bioscience and Agriculture Research. 05 (2): 59-64

Islam, F. Hossain, M.S. Sarker, S.C. Choudhury, M.P & Majumder, A. (2016). Black Bengal goat keeping at Mymensingh sadar upazila in Bangladesh. Journal of Bioscience and Agriculture Research. 6(2): 541- 546.

Islam, M.A, Hossain, M.N, Chokraborti, S.S. Rahman, S. Tasnim, A. & Zabir, A.A (2018). Socio-economic Profile of Goat Rearing Farmers and Their Management Practices in Sylhet, Bangladesh. Journal of Agriculture and Ecology Research International. 15(4): 1-10

Islam, M. R., Amin, M. R., Kabir, A. K. M. A. & Ahmed M. U. (2009). Comparative study between semi-intensive and scavenging production system on the performances of Black Bengal goat. J. Bangladesh Agril. Univ. 7(1):79–86.

Kumar, A. Chae B.J, Bhuiyan A.K.F.H, Sarker S.C, & Hossain M.M (2018). Goat production system at Mymensingh district in Bangladesh. Bangladesh Journal of Animal Science. 47(1): 13-20

Naim, N. & Ahmed S. T. (2021). Naim and Ahmed Prospects of Goat farming in Mymensingh of Bangladesh Int. International Journal of Innovative Research. 6(3): 28–35.

Nooruddin M, Hoque M.H, Barik M.A & Islam S.M.N (1987). Prevalence of skin diseases in Black Bengal goats. Bangladesh Veterinarian. 4(1-2): 5-9.

Pattamarakha K., Tanapanyarachwong J. & Saithanoo S. (1997) The use of recommended goat husbandry practices by farmers in Southern Thailand : AJAS, Vol. 10(6): 587-592

Paul D C, Haque M.F and Alam M.S 1991: Goat production in south-west region of Bangladesh. Livestock Research for Rural Development. 3(3): 591

Peacock and Christie (1996). Improving Goat Production in the Tropics: A manual for development workers : Oxfam GB.

Rahman M.M, Hossain M. M & Miah (2017**)** Poverty reduction and livelihood improvement of women through goat rearing : Asian Journal for Poverty Studies. 3(1): 59 - 66

Samad M. A. (2021). A five-decade systematic review of research progress on publication and management of small ruminants in Bangladesh: Journal of Veterinary Medical and One Health Research. 3(1): 1-91.

Sarker, A.K (2018**).** Present Status of Organic Sheep Production in Ramgoti Upazila of Lakshmipur District . Journal of Environmental Science and Natural Resources, 10(2): 95-103

Tanwar, Sharma & Vaishanava(2008). A study on socio-economic aspects of goat keepers and management practices prevailed in the tribal area of Udaipur district of Rajasthan. Indian Journal Of Animal Research. 42 (1): 71-74

Thombre B.M, Suradkar D.D & Mande (2010) . Adoption of improved goat rearing practices in Osmanabad district. Indian Journal of Animal Research. 44(4): 260 - 264,

Zanjira Upazila." Banglapedia, (2021), en.banglapedia.org/index.php/Zanjira_Upazila.

Chapter 7: Biography

This is Sydur Rahaman, son of ***A. Aziz Madbar*** and Late ***Maloncha Begum***, was born and raised in Shariatpur and received Primary, Secondary, and Higher Secondary Education under the Dhaka education board. Now I am an intern veterinary doctor under the faculty of Veterinary Medicine at Chattogram Veterinary and Animal Sciences University. My aspiration is to pursue a career as a veterinary practitioner and engage in research focused on clinical animal disease in the context of Bangladesh.