

**A study on backyard goat farming in Bagatipara Upazilla,
Natore, Bangladesh**



A production report presented in partial fulfillment of the
requirement for the degree of

Doctor of Veterinary Medicine

A Report submitted by

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Session: 2014–2015

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November, 2021

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November, 2021

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List of Abbreviations

Abbreviation	Elaboration
BBG	Black Bengal goat
Kg	Kilogram
BBS	Bangladesh Bureau of Statistics
DLS	Department of Livestock Services
Tk	Taka

Abstract

The study was undertaken to investigate the performance of goats and livelihood generated through backyard goat rearing at nine different villages namely Pacuria, Batikamari, Taltola, Bagatipara, Dayarampur, Boropukuria, Sonapur, Misripara, Tunipara under the Bagatipara Upazilla in Natore District, Bangladesh from March to May 2021. The data uses a pre-configured questionnaire containing information on livestock, age, sexual maturity, litter size, weight, gestation period, housing system, grazing, breeding objectives, vaccination and deworming history and production record. The average weight of males and females was 12.36 kg and 20.35 kg, respectively. The number of litters of goats was 2 to 3 and the lactation period was 64.5 days. The average milk yield of goats was 33.9 kg per lactation period, while the average milk yield per goat per day was 0.570kg. A few numbers of farmers (25%) used vaccination and practiced de-worming (75%) their goats. All goats were reared by the semi-intensive system. In the winter season, they provided bedding materials usually straw at night. Farmers used green grass (100%) and supplied water by using a deep tube well. Most of the farmers provided to goat concentrate feed about (200-300) grams per day. The housing, feeding and breeding were maintained in most of the farms, but the healthcare and biosecurity were not up to the mark.

Keywords: Backyard goat farm, Body weight, Rearing system, Reproductive performance

Chapter1: Introduction

Goats are an important animal genetic resource in developing countries in Asia. In Bangladesh, goats are highly regarded for their contribution to meat and skin. Goats are the main species raised by farmers. Bangladesh has a population of 34.5 million goats, goat meat production of 130,000 tons, goat milk production of 1.31 million tons and fresh skin production of 42,000 tons (FAO, 2003). Livestock in Bangladesh is mainly cattle, goats, sheep, buffalo and poultry (DLS, 2018). The goat, along with other livestock, is one of the most important species in Bangladesh. Goat populations increased at a rate of 10% per year from 1970 to 2003, while cattle populations also declined (FAO, 1970 and 2003). Currently, there are approximately 26.1 million goats (DLS, 2019). Goats help reduce poverty in Bangladesh, especially for women, smallholders and farmers in geographically isolated areas (Ershaduzzaman et al., 2007). Goat as a multi-functional animal, is essential in rural economy and nutrition. It has short generation intervals, higher rates of prolificacy and high market demand (Islam *et al.*, 2016). About 45% of Bangladesh's population lives below the poverty line, and 36% of all agricultural households are engaged in goat breeding (BBS, 2014). Goat meat is consumed by all without any religious and social taboos (Senthil *et al.*, 2018). Goat rearing being the main means of survival for many women in remote villages, there is a need to develop a scientific method of goat rearing without causing adverse impact on the environment (Choudhury et al., 2012). In Bangladesh commercial and backyard farming are practiced. Backyard farming is a part of landless, small and marginal agricultural farmers (Senthil *et al.*, 2018). Backyard farming is a movement in which ordinary people living in typical homes in typical neighborhoods turn some of their property into mini or micro farms. Goat breeding in the backyard is run by poor households to support their families due to low investment (Raja et al., 2018). Goats feed on barren roadside lands and have few homemade supplies such as congee, cooked rice, and vegetable peels (Hassan et al., 2007). Black Bengal goat is the most common type of goat and is common throughout the country. Other goat varieties such as Jamnapari and crosses have also been found. In our country, more than 90% of goat populations are Black Bengal, and other goats mate in Jamnapari (Jalil et al., 2018). Black Bengal goats are mostly black. However, white streaks are also found in black (13%), brown (5%), perfect white (4%), black and white spots, or brown and white, or brown and black (9%). (Chowdhury, 2002). Due to the increasing demand for meat, especially skin, in domestic and international markets, goat farms are very much focused on vulnerable populations and the country's existing socio-economic status (Hassan et al., 2011). The goats make a significant contribution to the economy of

the local villagers among the poor families. To gather the latest information from this study, we need to learn about goat breeding systems, feeding systems, and health care.

Chapter 2: Methodology

The survey was conducted in nine villages under the Bagatipara Upazilla in Natore District: Pacuria, Batikamari, Taltola, Bagatipara, Dayarampur, Boropukuria, Sonapur, Misripara, Tunipara (Fig. 1). The data was collected by a direct random survey method using pre-configured questionnaires. This survey was conducted from March to May 2021. The questionnaire included information on total goat populations, breeding systems, feed types, and feeding systems. With the help of questionnaires, various production and reproductive data such as mating system, grazing, age, sex, breed, goat number, body weight, lactation period, milk yield, production performance. Some additional information about family member participation in goat rearing, purposes of goat raising were also collected. The information collected was compiled in Microsoft Excel.

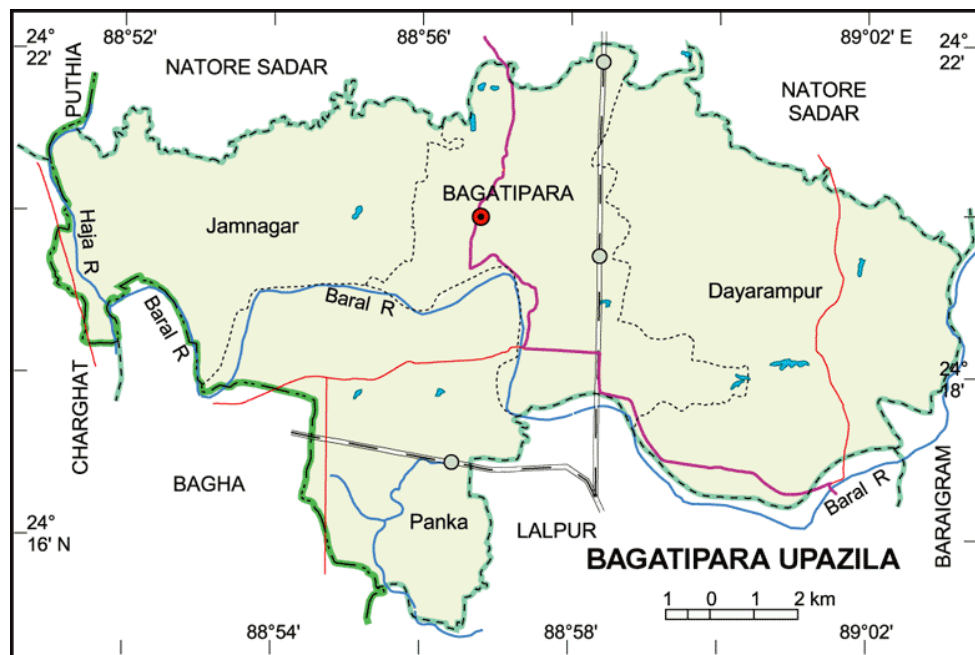


Figure 1: The study area (Bagatipara)

Chapter 3: Results and Discussion

3.1.Bodyweight

Table 1 shows the average weights of males and female goats. The average body weight from day 0 to 6 months was 9.1 kg for males and 7.5 kg for female goats. The average weights of males and females between 7 and 12 months were 16.71 kg and 13.5 kg, respectively. The average weights of males and females between 13 and 24 months were 18 kg and 21 kg, respectively. The average mature weight of males was 12.36 kg and for females was 20.35 kg. This result is similar to the findings of Jalil (2014). However, the results were lower than those observed by Chowdhury et al. (2002), with average adult body weights of males and females goats of 29.9 ± 1.76 kg and 23.6 ± 0.81 kg, respectively. The body weight of male is lower than female as most of the male are sold for meat purpose after certain age but females are kept for long periods for breeding purposes.

Table 01: Average body weight of male and female goat

Age (month)	Average body weight of male(kg)	Average body weight of female(kg)
0-6	9.1	7.5
7-12	16.71	13.5
13-24	18	21
25-48	-	27.4
Above 48	-	35
Average	12.36	20.35

3.2. Rearing System of the goats

Farmers in the study area raised goats in a semi-intensive system (Table 2). Hossain et al. (2015) found that few goat breeders raised goats in a free-range and intensive system. They provide bedding materials such as straw and stover. In this survey, about 88.9% of farmers used straw and 11.1% used stover as goat bedding. However, the largest farmers provided goats with litter in the winter. Most farmers bathed goats in the summer, but most did not bathe goats in the winter season.

Table 02: Rearing system of Goats

Parameter	Category	Number of Goats	Percentage
Rearing system	Confinement	0	0
	Semi-intensive	36	100
Provide bedding material during the winter season	Straw	32	88.9
	Stover	4	11.1

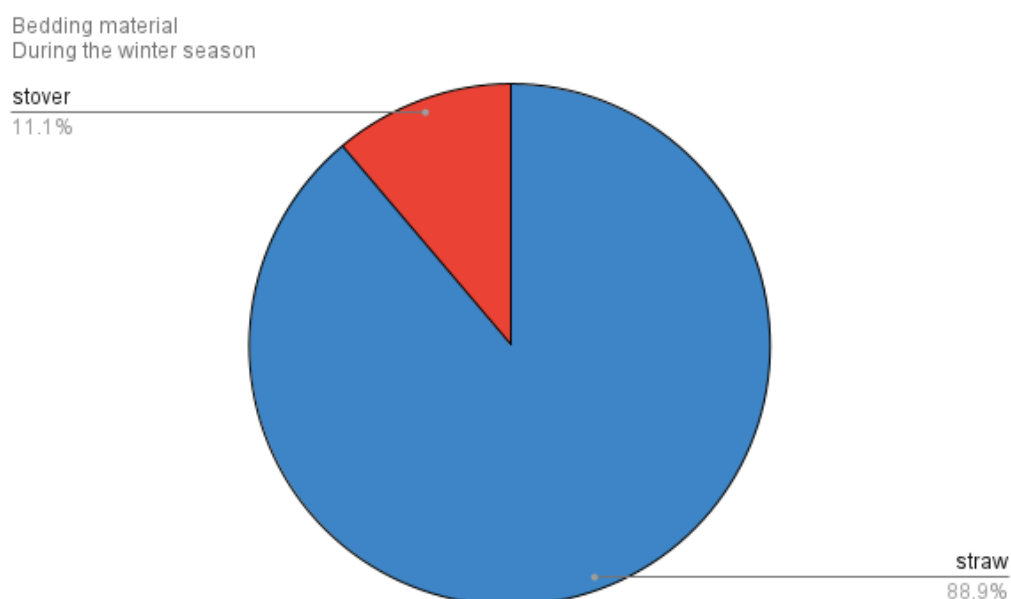


Figure 2: Bedding materials during the winter season.

3.3. Litter size

The average litter size in Black Bengal does were 2.55. Amin (2000) reported litter size of selected BBG goat as 1.96 and those of random population goat as 1.68, while in generation 1 (G1) and in generation 2 (G2) those were 2.15 and 2.18, respectively. Jalil (2014) reported that the litter size of Black Bengal goats was 1.75 ± 0.03 ; it is also lower than this study. The number of litters in goats ranged from 1 to 4. The number of litters of 1 to 3 BBG goats has been reported by Chowdhury et al. (2001), which is similar to the study.

3.4 Feeding management

Feed management is one of the most important factors in goat breeding. Feed costs are the highest of all other production costs. On the other hand, normal physiology depends on proper feeding management. The main feed of goats are grasses. Most of the farmers provided 200-300 gm (Figure 4) of concentrated feed averagely. Some goat farmers (30.6%) (Figure 5) provided various feed supplements (vitamins, minerals). Source of drinking water was a deep tube well. This result agreed with the results of Islam et al. (2018).

3.6 Age at puberty

The average age at the first sign of heat of Black Bengal goats were 193.2 ± 7.5 days (Hassan et al., 2007). According to research reports, the average age of puberty is 199.6 days. This result was in agreement with the result of Hassan et al. (2007).

3.7. Lactation period

The average lactation period for Black Bengal goats was 77.7 ± 7.5 days. In this study, the average milk feeding time was 65.4 days. This result is similar to that of Shill et al. (2003).

3.8. Milk production

The average milk yield of Black Bengal goats was 33.91 kg during lactation per goat. The average daily milk yield and goat was 0.570 kg. Total milk yields in goats range from 0.240 to 1.73 kg and have been reported (Dhara et al., 2012).

3.9. Vaccination and de-worming

In the study area, several farmers (25%) were vaccinated and goats were dewormed (75%), but this result was higher than Islam et al. (2016) due to the higher awareness of the farmers.

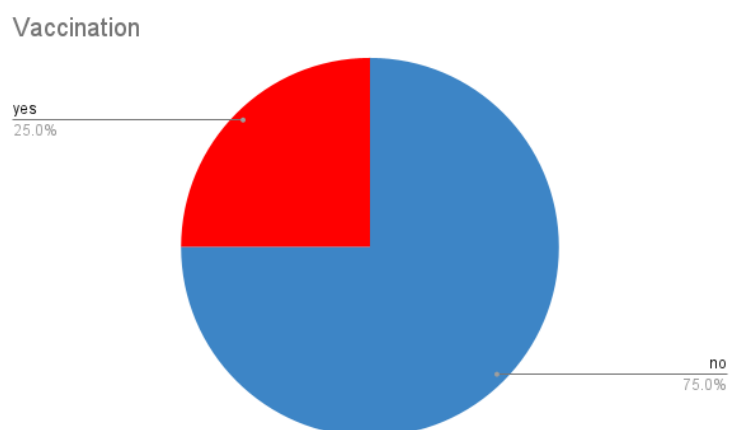


Figure 6: Vaccination of goats

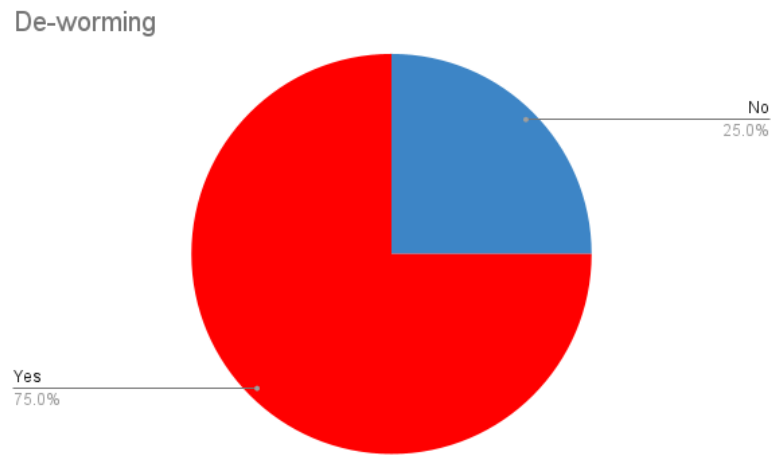


Figure 7: De-worming of goats.

3.10. Profits of goat rearing

The average cost of raising a goat for 12 months in the test area was 666 Tk. The main yield of one goat in the test area was from Kids, and the farmer's annual income for one goat was 7733Tk. The value of a single goat varied from 6000-8000 Tk. The average annual net income of a goat is 6667 Tk.

Conclusion

It is worth noting that the Black Bengal goat was able to generate income for rural residents and lead a better life. Women's employment increased dramatically as they were engaged in goat breeding. The once unemployed rural woman later engaged in livestock farming as a profession, a good sign of the country's development. It is clear that the lives of goat farmers are changing rapidly. Veterinary service provision and improved management guides can repeatedly increase the importance of Black Bengal goats in rural and urban livestock farming.

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Acknowledgements

Firstly, I would like to express my deepest sense of gratitude to Almighty “Allah”, who enables me to complete the research work and dissertation.

I would like to express the heartiest appreciation, gratitude and best regards to my supervisor **Dr. Gous Miah**, Professor, Department of Genetics and Animal Breeding, CVASU. I really thankful for working under his constructive, useful and effective supervision.

I feel much pleasure to convey thanks to the **Prof. Dr. Mohammad Alamgir Hossain**, Dean, Faculty of Veterinary Medicine; **Prof. Dr. A.K.M Saifuddin**, Director, External affairs, CVASU for the valuable cordial co-operation and suggestion during the whole intern period.

Last but not least I would like to express my gratitude, cordial respect to my beloved family members for their immense sacrifice, blessings and encouragement.

Biography

I am **Md. Nur-A Toufiq Shanto**, son of **Sultan Uddin Ahmmod** and **Most. Nur-E-Afroz**. I passed Secondary School Certificate examination in 2012 (G.P.A. 5.00) followed by Higher Secondary Certificate examination in 2014 (G.P.A. 5.00). Now I am an intern veterinarian under the Faculty of Veterinary Medicine in Chattogram Veterinary and Animal Sciences University. In the future I would like to work as a veterinary practitioner and do research on clinical animal diseases in Bangladesh.