Prospects and Challenges of Backyard Goat Farming in Kashiani Upazila, Gopalganj

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Signature of the author

Md. Monzurul Hasan
Roll No: 16/102
Reg. No: 1646
Intern ID: 88
Session: 2015–2016

Faculty of Veterinary Medicine
Chattogram Veterinary and Animal Sciences University
Khulshi, Chattogram-4225, Bangladesh

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Approved by

Signature of the supervisor

Dr. Sohel Rana

Associate Professor

Department of Agricultural Economics and Social Science

Faculty of Veterinary Medicine
Chattogram Veterinary and Animal Sciences University
Khulshi, Chattogram-4225, Bangladesh

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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

At fourteen separate unions in Kashiani upazilla in Gopalgang district, the study was conducted to examine the performance of goats and the livelihood created by backyard goat husbandry. Information including age, sexual maturity, litter size, weight, gestation period, housing arrangement, grazing, breeding goals, vaccination and deworming records, and production history, was gathered. Males and females had average weights of 14.54 kg and 20.98 kg, respectively. Goat litter sizes ranged from two to three, and the lactation period was 64.5 days. Goats produced an average of 33.9 kg of milk during a lactation period, and an average of 0.570 kg of milk per goat every day. A small percentage of farmers (25%) vaccinated and dewormed (75%) their goats. The semi-intensive technique was used to raise all of the goats. During the winter, they provided materials for bedding, typically straw, at night. Farmers used green grass (100%) and supplied water by using a deep tube well. The majority of farmers gave goat concentrate feed at a rate of 200–300 grams per day. Most farms maintained the housing, feeding, and breeding, but the health-care and biosecurity fell short of expectations.

Chapter 1: Introduction

In developing Asian countries, goats constitute a significant source of animal genetic resources. Goats are highly valuable in Bangladesh for both their meat and their skin. The primary animal raised by the most farmers in rural area is goat. There are 34.5 million goats in Bangladesh, and they produce 130,000 tons of goat meat, 1.31 million tons of goat milk, and 42,000 tons of fresh skin per year (FAO, 2003). There are 34.5 million goats in Bangladesh, and they produce 130,000 tons of goat meat, 1.31 million tons of goat milk, and 42,000 tons of fresh skin per year (FAO, 1970 and 2003). There are around 26.1 million goats in existence right now (DLS, 2023). Goats aid in eradicating poverty in Bangladesh, particularly for women, smallholders, and farmers in remote locations (Ershaduzzaman et al., 2007). The multipurpose goat is crucial to the rural economy and to human nutrition. It has quick generation cycles, greater prolificacy rates, and significant market demand. Bangladesh has a population that is roughly 45% below the poverty level, and 36% of all agricultural households are goat breeders (BBS, 2014). Everyone eats goat flesh without any religious or societal taboos. There is a need to create a scientific way of goat keeping without having a negative influence on the environment because goat farming is often the only means of life for many women in isolated areas (Choudhury et al., 2012). Commercial and backyard farming are both done in Bangladesh. Landless, small, and marginal agricultural farmers engage in backyard farming (Senthil et al., 2018). Due to little investment, poor households establish goat farms in their backyards to sustain their family (Raja et al., 2018). Goats have few handmade resources, such congee, cooked rice, and vegetable peels, and they eat the barren wayside grounds (Hassan et al., 2007). The most prevalent breed of goat in the nation is the black Bengal goat. There are also other goat breeds, like Jamnapari and crosses. In our nation, Black Bengal goats make up more than 90% of the population, and other goats mate in Jamnapari (Jalil et al., 2018). Most black Bengal goats are black. But white streaks can also be found in black (13%), brown (5%), perfect white (4%), black and white patches, brown and white, or brown and black (9%) (Chowdhury, 2002). Goat farms are heavily focused on vulnerable populations and the nation's current socioeconomic position because to the rising demand for meat, especially skin, in domestic and foreign markets (Hassan et al., 2011). The local villagers' economy, particularly that of the disadvantaged families, greatly benefits from the goats. We must learn about goat breeding systems, feeding systems, and health care in order to compile the most recent findings from this study.

Chapter 2: Methodology

The survey was conducted in fourteen unions under the Kashiani Upazilla in Gopalganj District: Maheshpur, Kashiani, Shajail, Parulia, Mahmudpur, Ratail, Orakandi, Bethury, Rajpat, Fukra, Puisur, Nizamkandi, Singa, Hatiara (Figure 1). Direct random surveying was used to gather the data. The time frame for this study was from April to June 2023. Information on total goat populations, breeding practices, feed varieties, and feeding systems were all included in the data. Various production and reproductive information, including information on the mating system, grazing, age, sex, breed, number of goats, body weight, lactation period, milk supply, and production efficiency, was gathered.
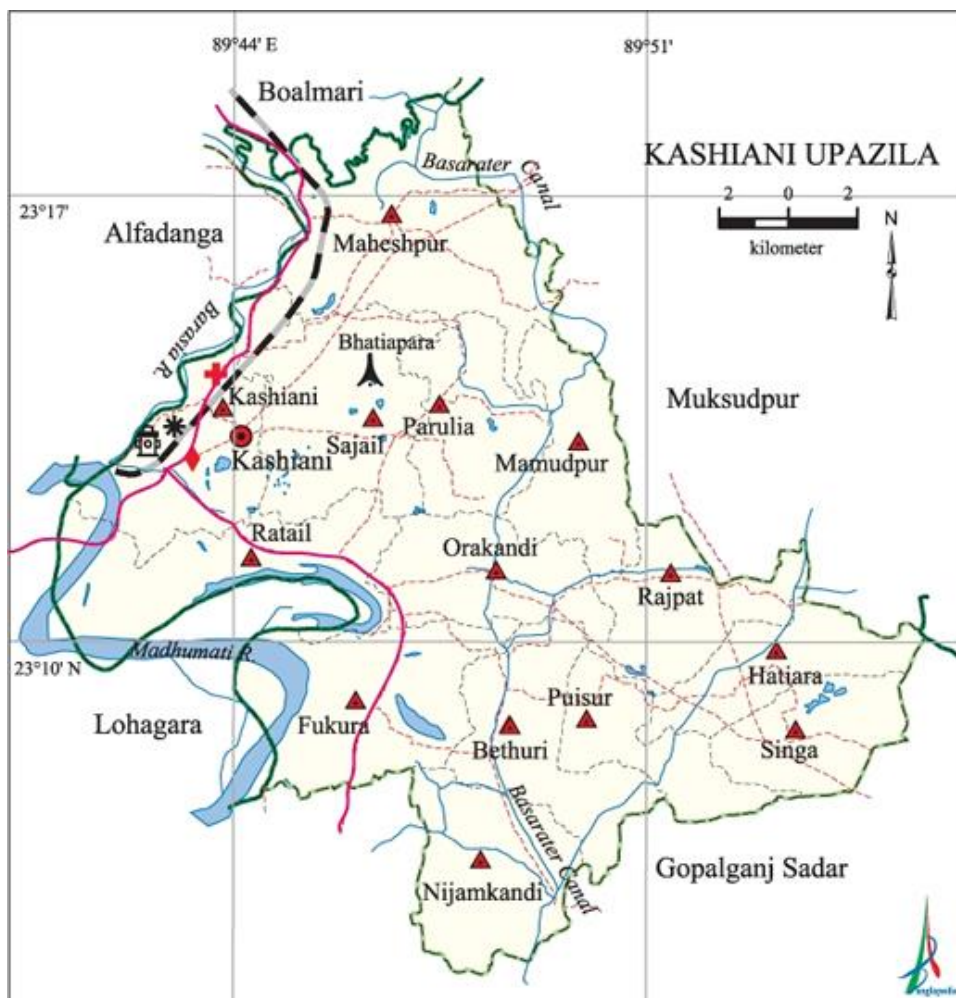

Figure 1: Study area (Kashiani Upazilla of Gopalganj District).

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 9.3 kg for males and 7.7 kg for female goats. The average weights of males and females between 7 and 12 months were 16.81 kg and 13.8 kg, respectively. The average weights of males and females between 13 and 24 months were 17.5 kg and 21 kg, respectively. The average mature weight of males was 14.54 kg and for females was 20.98 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 1: Average body weight of male and female goat

Age (month)	Average body weight of male (kg)	Average body weight of female(kg)
0-6	9.3	7.7
7-12	16.81	13.8
13-24	17.5	21
25-48	-	27.4
Above 48	-	35
Average	14.54	20.98

3.2. Rearing System of the goats

The majority of farmers in the study area used a semi-intensive approach to produce goats. They provide out bedding components like stover and straw. In this study, 79.48% of farmers reported using straw and 20.52% reported using stover as goat bedding. The biggest farmers, though, provided wintertime litter for the goats. While most farmers bathed their goats in the summer, few did so in the winter.

Table 2: Rearing system of Goats

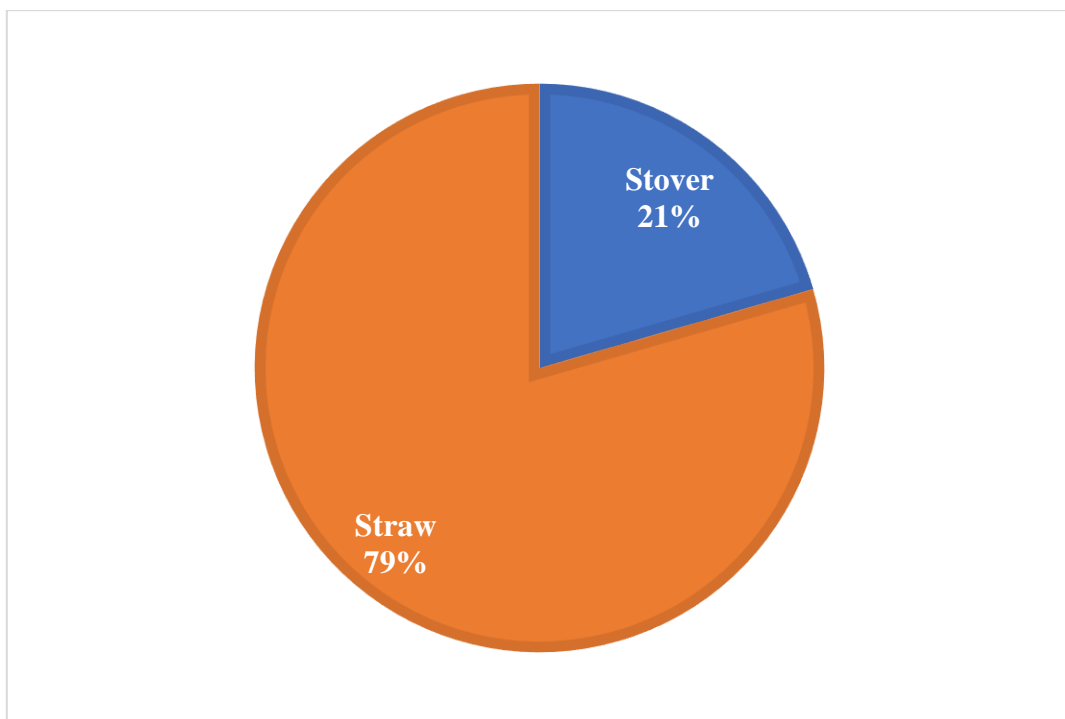| Parameter	Category	Number of Goats	Percentage (%)
Rearing system	Confinement	0	0
	Semi-intensive	39	100
Provide bedding material during the winter season	Straw	31	79.48
	Stover	8	20.52

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

One of the most crucial aspects of rearing goats is proper feeding management. Of all the production expenditures, feed costs are the most expensive. On the other hand, effective food control is necessary for appropriate physiology. The main feed of goats are grasses. The majority of farmers typically provided 200–300 g of concentrated feed (Figure 3). 30.6% of goat producers offered various feed additives, including vitamins and minerals (Figure 4). Water for drinking was obtained from a deep tube well mostly.
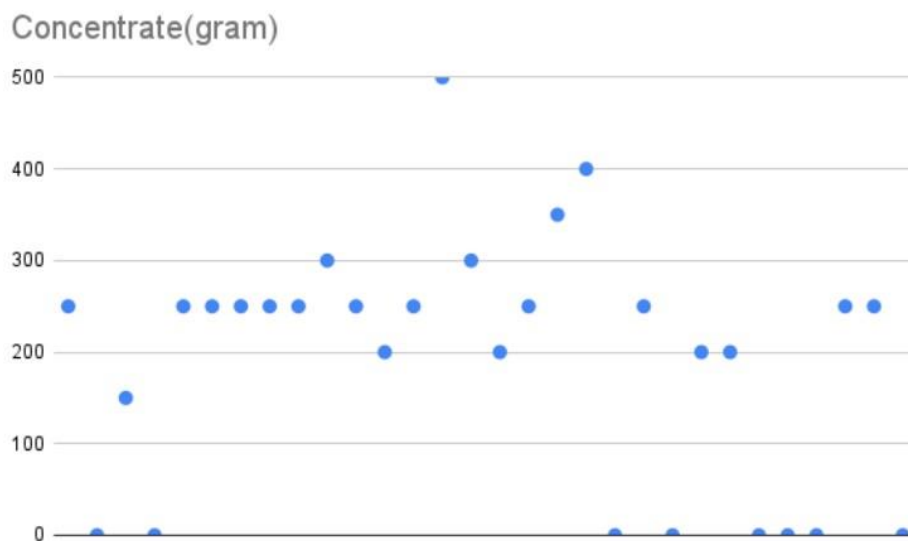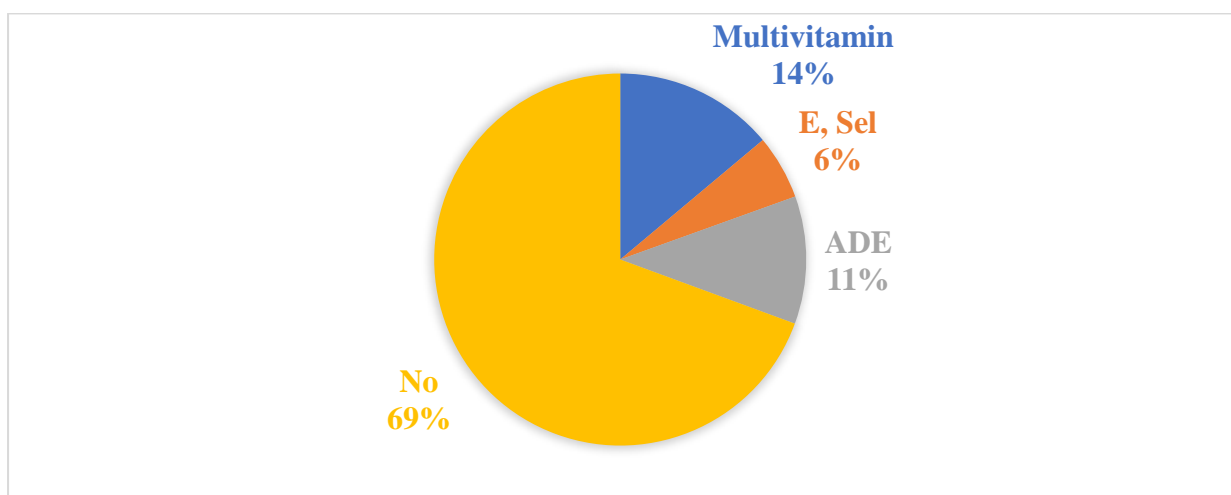

Figure 3: Concentrate provides for goats.

Figure 4: Vitamin-mineral supplement.

3.5. Grazing place and grazing period

As a result of our research, we discovered that the majority of the goats graze in fields, leaving their remains along the wayside (Figure 6). Farmers like to take their goats out in the morning and the afternoon, and some farmers only let their goats graze at certain times of the day, usually in the morning or the afternoon.
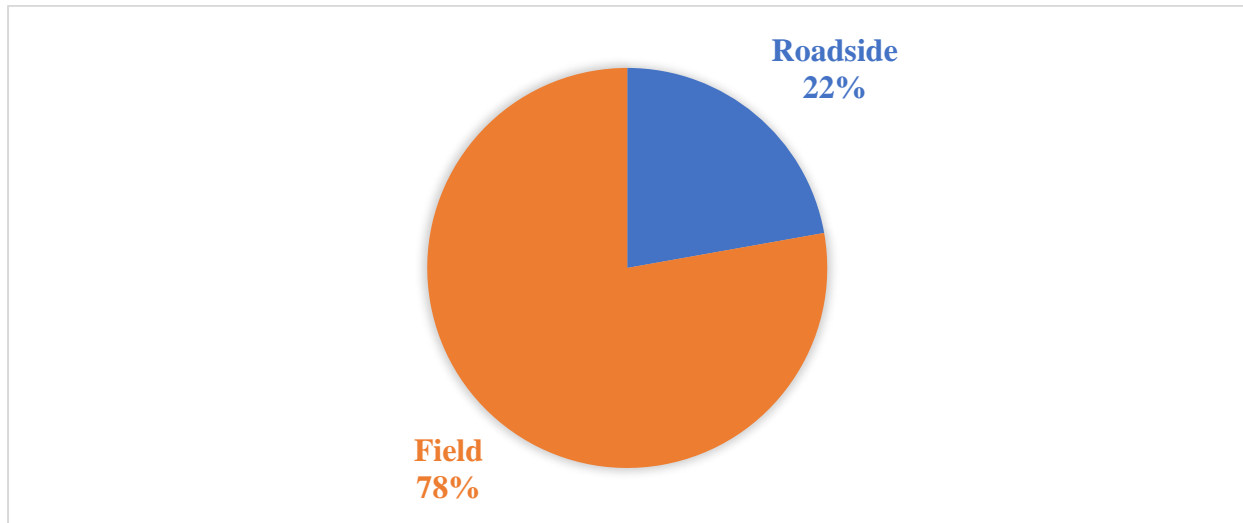

Figure 5: Grazing place.

3.6 Age at puberty

Black Bengal goats' average age at the onset of heat was 193.2 +/- 7.5 days (Hassan et al., 2007). The average age of puberty, according to study findings, is 199.6 days. This outcome agreed with the finding 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 64.5 days. This result is similar to that of Shill et al. (2003)

3.8. Milk production

Black Bengal goats produced 33.91 kg of milk on average during lactation per animal. Goat milk production per day was an average of 0.570 kg. There have been reports of goats producing total milk yields ranging from 0.240 to 1.73 kg (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.
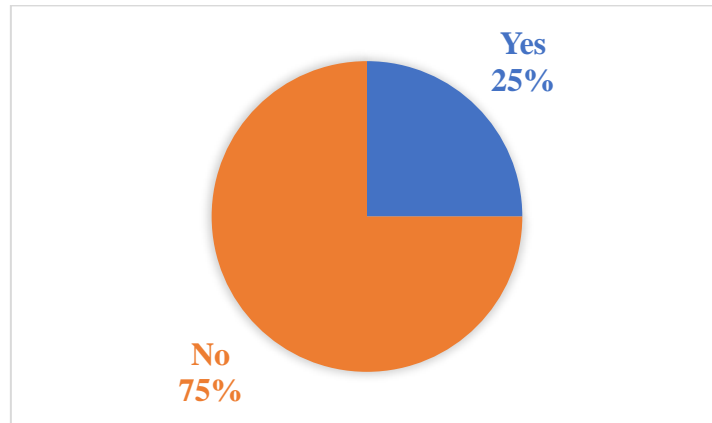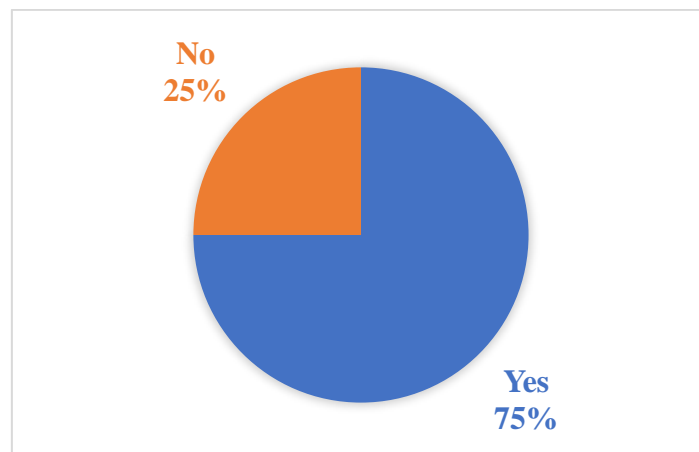

Figure 6: Vaccination of goats

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 732Tk. The main yield of one goat in the test area was from Kids, and the farmer's annual income for one goat was 7502Tk. The value of a single goat varied from 4000-10000 Tk. The average annual net income of a goat is 6250 Tk.

Conclusion

It is noteworthy that the Black Bengal goat was able to provide rural dwellers in need with a source of income. Due to their involvement in goat rearing, women's employment increased significantly. Many widows and grass-widows rear goats as a main source of income for their family maintenance. It is obvious that goat farmers' lifestyles are rapidly changing. The availability of contemporary veterinary services and better management manuals can consistently raise the value of Black Bengal goats in both rural and urban livestock production.

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Biography

I am Md. Monzurul Hasan. I was born in Kachua, a remote area of Bagerhat district. I passed my Secondary School Certificate (SSC) examination from Mobaidul Islam Secondary School, Bagerhat in 2013 and Higher Secondary Certificate (HSC) examination from Kachua College, Bagerhat in 2015. I enrolled for Doctor of Veterinary Medicine (DVM) degree in Chattogram Veterinary and Animal Sciences University (CVASU), Chattogram, Bangladesh in 2015-2016 session. In the near future, I would like to work and have massive interest in Animal Welfare and Veterinary Ethics.