

CHAPTER- I: INTRODUCTION

Goat plays an integral part of the livestock production systems in Bangladesh. Goat, however, is the exception increased both in developed (26%) and developing (49%) countries (Hossain et al., 2004). Bangladesh has 25.17 million (DLS, 2010) goats, representing 58.8% of the livestock population of which > 90% comprise Black Bengal goats. Landless and small farmers keep 52.4% of the goats and medium and large farmers keep the rest (Sultana et al., 2012). These goat farmers are distributed throughout the country, and are economically viable household in mixed farming systems. It is dual purpose breeds for its milk as well as meat production. They give birth twice a year or more commonly thrice in 2 years (Zeshmarani et al., 2007) and the number of kids at one time varies from single to quadruplet. Twinning is more frequent (56.32%) and quadruplet is the least frequent (2.11%) litter size (Hassan et al., 2007). In many areas of the world milk is seen as bring special benefit to such children's, high quality protein and high levels of minerals specially calcium and vitamins in a very palatable form. Composition of Black Bengal goat milk in terms of Total solid, fat, protein, lactose and ash are 14.41, 4.37, 4.0, 5.24 and 1.42% respectively (Dhara et al., 2012). Besides goat milk casein and goat milk fat are more easily digested than from cow milk. Goat milk is valued for the elderly, sick, babies, children with cow milk allergies, patients with ulcers and even preferred for raising orphan foals or puppies.

In Bangladesh small marginal and landless rural farmers traditionally rear goat. They generally follow the extensive management system, primarily with poor natural vegetation and crop stubbles, without any supplementation. Most of the cases farmers keep their goats within their house, sometimes farmers use separate house adjacent to that of the farmer house. Goat usually collects their feeding requirements by grazing and foraging on natural vegetation in pasture land. Because of their higher fecundity and better productivity, goat assured income to the rural people with low input cost in diverse agro-climatic conditions.

During my internship placement I have seen the different management system of goats. The productive and reproductive performance of Black Bengal goat's differed with the management. Though Black Bengal goat is a potential goat breed in Bangladesh and it has several advantages. However, it produces less amount of milk and the milk is insufficient for kid rearing in case of multiple births. The information on optimum management of Black Bengal goat and its daily average milk yield is very limited.

Objectives:

- (i) To know the current management system of Black Bengal goat
- (ii) To study milk yield of Black Bengal goat; and

CHAPTER- II: MATERIALS AND METHODS

2.1. Study Area

The study was conducted at three farms in Nangolkot Upazilla, Cumilla, Bangladesh.

2.2. Study period

The duration of the study is about 8 weeks from 2nd February to 28th March.

2.3. Study populations

There were 3 black Bengal goat farms were selected for the study. The total no of Black Bengal goat of my study is 36.

2.4. Data Collection

2.4.1. Management Practices

The farms were visited several times to know their daily activities and management. The main activities and management practices were recorded during visit. In Farm1 goats were kept on the bamboo platform high from the land of tin shed house which was well ventilated. A total of 40 goats were reared in one shed of this Farm1 among them 15 are Black Bengal goat. There were separate place for kids in the shed. In Farm2 and Farm3 goats were kept in the ground with sand on the floor of kachcha house. Farm2 had 10 goats and Farm3 had 11 goats. They had no separate shed for their kids. The kids were fed milk from their dam up to weaning.

2.4.2. Recording Milk production

It was not easy to take the correct measure of milk in a day. As hand milking is not practiced in those 3 farms so estimation of milk yield is done in different way. From 3 farms, 3 goats were selected from each. Kids of 9 female goats were in different ages. The kids were kept separately from their mother from overnight. In morning I took the weight of kids before milk feeding. Then the kids were allowed to suck milk from their dam. After completing the milk feeding kids were weighted again. The amount of milk yield in a day was calculated between the differences of weight of kid after milk feeding and weight of kid before milk feeding. Then I have converted

the amount of milk into ml from gm. I was collect the data of milk production 4 times, about 15 days interval each data was collected

2.4.3. Analysis of data

The collected data were unequal which was tabulated in MS Excel-2010 and edited. After that the data was analyzed in MS Excel-2010. The collected data were analyzed by using the statistical package (SAS, 2000).

PHOTO GALLERY



Figure 1: photos of my activities in the farm.

CHAPTER- III: RESULTS AND DISCUSSION

3.1. Management of black Bengal goat

The management of Black Bengal goats of studied farms are presented and discussed as: the farmers are rearing goat under extensive system and semi-intensive conditions. In farm 1, semi-intensive management systems were practiced. The housing of farm 1 was high platform tin shed. There were 15 black bengal goats in this farm out of these 4 doe, 1 buck and 2 growing and 8 kids. The goats were allowed to graze in the field about 6-7 hours in morning session. They graze on barren and roadside land with grass. Farm1 was provided feed 2 times in a day. Concentrate mixture like broken rice, wheat bran, motor bran, banana residues was supplied. Farmer supplied 2 kg mixture for every day. DM, CP and CF of wheat bran is 88.9%, 13.8% and 12.2%. Sometimes less homemade supplies such as rice gruel, various tree leaves such as jackfruit leaves, mango leaves etc were provided. (Kabir et al.,2002) mentioned that DM intake of goat was 3.5% of live weight, CP intake of 76.1g/day in goats supplemented with 250g concentrate per day. Adequate water was supplied every day. Kids were fed milk from their dam up to weaning. The shed of Farm1 was cleaned every day. In winter season 1.5 inches thin straw spread on the floor. It keeps the goat warm. This straw was cleaned once or twice in a week. In this farm there were two dam which had three kids. In Farm1 regular deworming was practiced and sometimes grooming was done to protect from ectoparasite. Goats were vaccinated against PPR. The management of other two farms was not so well organized as farm1. The management of these two farms was same. There were 10 goats in farm2 among of these 3 doe and 7 kids and in farm3 there were 11 goats among of these 4 doe and 7 kids. Goats were kept in separate house which was adjacent to farmer's house. Goats were kept in ground with sand on the floor in kachcha house. There were no separate sheds for kids, because most of the goat farmers are poor. According to Nandi et al.(2011), Goat farming is much popular amongst the landless, small and marginal farmers (58.1%) followed by the agricultural labourer (28.2%), whereas, only 9.6% of small business holders and 4.1% of service man are related with goat husbandry. Bedding materials used in

winter season. Goats were allowed to graze for 9-10 hours. Homemade supplies like rice gruel, motor bran, tomatoes etc. were supplied and keep adequate water supply during feeding. Regular deworming was done. Grooming was not usually practiced. When goats were in disease condition a veterinarian treat them for any diseases or disease condition.

3.2. Daily milk yield of Black Bengal goat

The daily milk yield of Black Bengal goats in 3 farms are presented in Table 1. From table 1 it could be seen that the goats of farm 1 was produced higher milk than other two farm and the goats of farm 2 and 3 produces similar amount of milk. In farm 1, management system is better than other two farms. Farm 1 also has the dam which had three kids. Here I have found that the Black Bengal goats were produced 200-220 ml milk per day. Similar finding was reported by Hossain et al. (1993), Hossain et al. (2004) and Talukder (2010). The milk production performance mainly effect by the genetic property, the management system has little effect on milk production which is clear in Table 1. Milk production ability is mainly controlled by genetic properties within and between the breeds but environmental factors affects the total milk yield (Faruque et al., 2010). According to Sultana et al. (2012) Milk yield was significantly ($P<0.01$) increased with the supplementation of concentrate. It is suggested to supplement 250 gm of concentrate daily to female goats in addition to ad-libitum roughage. Chowdhury et al. (2002) found that the average milk yield of Black Bengal does was 334g/day when fed 200-300 gm concentrates per day recommended is 556g/day.

Table 1: Effect of farm on milk yield of Black Bengal goats

	Farm 1	Farm 2	Farm 3	Level of Significance
MY	215.6667 ± 3.46	198.75 ± 5.48	207.75 ± 4.54	NS

Legends: MY= Milk Yield, NS = non significant.

*Here, Milk yield is recorded as ml of milk.

From the table 1, I have seen that milk production in farm 1 is better than the other 2 farms. Here, Farm1 had more scientific management system than the other two farms.

According to Hossain et al. (2007) in semi-intensive housing system the highest milk yield was recorded in 3rd parity that having three kids. Average daily milk yield in each parity was increased upto 4th week. Then after the 4th week there was a gradual decrease till end of lactation. The variation of milk yield may be due to feeding and management system.

Table:2 Effect of lactation stage in milk production.

Goat	Day1	Day 15	Day 30	Day 45
Fram1				
Doe1	220	216	225	200
Doe2	217	230	200	200
Doe3	210	240	210	220
Farm2				
Doe1	210	190	208	219
Doe2	180	200	230	218
Doe3	160	180	190	200
Farm3				
Doe1	200	210	180	230
Doe2	205	200	190	220
Doe3	210	240	200	208

*Here, Milk yield is recorded as ml of milk.

From Table-2 I have observed variation in milk production among the animals of same farm. Variation in milk production between the doe of same farm is seen due to the difference in the lactation stage and genotype.

The milk production of Anglo-Nubian, Barbari and Barbari × Black Bengal goats were compared. The respective average lactation yield of those genotypes were 171.27 ± 16.90 , 88.22 ± 8.67 and 52.31 ± 13.51 kg; mean annual milk yield 208.41 ± 24.57 , 117.13 ± 12.44 and 84.19 ± 23.45 kg; per day milk yield 0.82 ± 0.07 , 0.61 ± 0.05 and 0.43 ± 0.06 kg and lactation length 207.67 ± 7.36 , 143.89 ± 6.67 and 116.75 ± 13.86 days (Mia et al., 1994). The average daily milk yield and lactation length was 1.088kg and 66.07 ± 2.83 days respectively. Repeatability estimates for birth weight, litter size, kidding interval and daily milk yield were 0.47, 0.15, 0.02 and 0.49 respectively. Milk production ability is mainly controlled by genetic properties within and between the breeds but environmental factors affects the total milk yield (Faruque et al., 2010).

CHAPTER- V: CONCLUSION

The study reveals that the average milk yields of Black Bengal goats are different in 3 farms of Nangolkot Upazila. The study showed that the milk yield of goat depends on the feeding and management of the farm. However it is not the accurate estimation as there are some limitations in this study.

To enhance the production potential of this potential breed it is essential to introduce superior technologies and to create the necessary facilities of improved practices in goat keeping. Therefore the goat farming in our country is increase day by day and their management practices also improving. If we introduce the semi-intensive, intensive or stall feeding system then the production performance is increased. Stall feeding is very much effective for their performances. Nowadays many farmers are introducing the modern farming system of rearing goat for better performances.

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