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## **Status of housing profile and feeding management of Black Bengal Goats in northern districts of Bangladesh**

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**Abstract:** The survey was carried out to get present status of farmers, housing profile and feeding management of Black Bengal Goats. The study was performed in four districts of northern region of Bangladesh, namely Bogra, Sirajganj, Gaibandha and Rangpur. Middle aged people were more interested in rearing goat both traditional (53.75%) and commercial (60%) farming system. Males (100%) were dominant in commercial system and females (63.75%) in traditional farming system. Most of the traditional farming farmer's houses were earthen wall (76.25%) and non paved floor (71.25%). Brick wall (50%) and slatted floor (66.67%) were practiced more in commercial farming. Hundred percent farmers of commercial farming system constructed their farm away from own residence and (77.25%) traditional farming farmers house were attached with their own house without maintaining proper direction and ventilation system. 85% farmers of traditional approaches provided roadside and fallow land grasses by tethering feeding system and all commercial farming farmers cultivated fodder and fed by cut and carry feeding system after processing. Most of the traditional farming farmers (85%) did not provide any kind of concentrate mixture to their goats. In commercial farming approaches all goats were fed concentrate feed through homemade or purchased readymade feed from market. Drinking water sources of tube well (48%) and pond (49.25%) were interchangeable in traditional farming and tube well water was the main source in commercial farming approaches. In conclusion, both traditional and commercial farming approaches are practiced for goat production in northern districts of Bangladesh. This housing and feeding management for goat production are absolutely unclear. So, this study will support researchers and extension workers to develop proper strategic policies and help to take correct steps for future betterment of the Black Bengal Goats raising farmers.

**Keywords:** traditional farming; feeding system; earthen wall; housing; survey

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### **1. Introduction**

Goat represents 47.44% of the total livestock populations in Bangladesh. Commonly available breeds are Black Bengal goat, exotic breeds such as the Sirohi, Beetal and Jamnapari, and crossbreds between the Black Bengal goat and exotics. Black Bengal goat is only recognized breed in the country. It is estimated that more than 90% of goat population in Bangladesh comprised the Black Bengal goats. (Hussein, 1993). The breed is well known for its adaptability, fertility, fecundity, delicacy of meat, extreme disease resistance and superior skin quality. The skin of the Black Bengal goat in particular is unique throughout the world (Banerjee, 1980). It is also able to eat wide range of poor quality forages and browses, capable of walking long distance and easily managed compared to other small ruminants (Hussain, 1993) and even other goats breed available in the country. This breed is often referred to as poor man's cow due to requiring small investment and less management provision. More than 98 per cent of goats in Bangladesh are currently reared in rural areas with different housing and feeding system. Devendra and Mcleory *et al.* (1982) mentioned that in tropical countries the production system

of goat can be grouped into 5 categories, namely, extensive production, semi-intensive, tethering, intensive production and integration into crop agriculture. Out of those production systems, farmers of tropical countries mostly practice semi-intensive, tethering and intensive system due to lack of abundant land and competition between human on these land for grain production. Goats are fed concentrate in stall and grasses are supplied through cut and carry system in intensive condition. Farmers allow goat to Tether with poor natural vegetation and crop stubbles, without or with partial supplementation and also partly allow grazing the goat in fallow land, roadsides and river banks in semi-intensive production system. Housing in tropical and semi-tropical regions should be kept to a minimum except for the more intensive systems of production. Basically two main designs are available in the tropical countries such as the ground-level type and the stilted type. Housing of goats by ranchers normally does not take into consideration such factors as separation units for kids, sexes, pregnant does, and health reasons in tropical and semi-tropical regions (Yusuff and Khusahry, 1984).

The main hindrance of productivity of the goat in most tropical countries is diseases. A sound management program to keep goats healthy is basic to production. Goats breed are so much vulnerable to some kind of diseases and toxicity of few number of minerals. Black Bengal Goats are less susceptible to diseases for their naturally resistance capability against some sorts of disease. The common diseases which affect goats in tropical countries are helminthosis, peste des petits ruminants (PPR), contagious ecthyma, fever, pox, pneumonia, anthrax, ectoparasite, allopacia, anorexia, dog bite and misc.

Interestingly, both traditional and commercial farming approaches are practiced for goat production in northern districts of Bangladesh. This housing and feeding management for goat production are absolutely unclear. Therefore, we aim to conduct a survey to evaluate the socio-economic condition of farmers and their management practices both traditional and commercial farming system.

## **2. Materials and Methods**

### **2.1. Survey areas and time**

The study was carried out in four districts of northern region of Bangladesh, namely Bogra, Sirajganj, Gaibandha and Rangpur. The latitude and longitude of those areas are 24.5100<sup>0</sup> N and 89.2200<sup>0</sup> E, 24.3141<sup>0</sup> N and 89.5700<sup>0</sup> E, 25.3217<sup>0</sup> N and 89.5439<sup>0</sup> E, 25.00<sup>0</sup> N and 89.00<sup>0</sup> E. These areas were selected based on potential for Black Bengal Goat resources. The research work was conducted from July to October, 2016.

### **2.2. Questionnaire design**

The questionnaire was constructed based on recent rearing practices of black bengal goats of those selected areas by the Department of Animal Science, BAU, Mymensingh, which consisted of three sections: section A (Bibliography of farmers), section B (Housing profile) and section C (Feeding management). The section A encompasses details about of socio economic aspects such as age, gender, educational status and occupation. Section B collects data concerning wall, floor, location, direction, ventilation and source of light of house. While section C consists of questions that pertained to type of grasses, feeding system, grass processing, concentrated mixture and source of drinking water.

### **2.3. Method of data collection**

Data were collected through direct interview and making frequent personal visit. Necessary consent was taken from the owners before data collection. Before making interview, the objectives of the study were explained clearly to the farmers. Then the questions were asked in a simple manner with explanation whenever necessary.

### **2.4. Statistical analyses**

The survey on different parameters in this study was exploratory descriptive. Therefore, data were compiled, tabulated and analyzed with simple statistical method to fulfill the study objectives. Tabular technique was applied for the analyses of data using simple statistical tools like average, percentages etc. The process was adopted five-point scale to evaluate neutralizing measures for housing, feeding and disease incidence in Black Bengal goats of these selected areas. The scale was assigned values as follows; none=1; little=2; more=3; substantial=4; and the most=5. A mean score of 3.0 was obtained. Any item with a score of 3.0 and above was regarded as a neutralizing measure while items with mean less than 3.0 were not taken as neutralizer.

## **3. Results and Discussion**

### **3.1. Bibliography of traditional and commercial goat rearing farmers**

The bibliographies of the respondents are shown in Table 1. From the data generated from the field survey, age was an influential factor rearing Black Bengal Goats both traditional and commercial farming system. Middle

aged farmers were much interested in rearing goats to support their family and it covered 53.75% and 60% for traditional and commercial farming systems respectively. Ani (2007) reported that innovators are always in their either young or middle age. Young and old aged groups were interchangeable percentage in this study. Males (100%) were dominant in commercial farming system but in traditional farming system females (63.75%) were higher participants. The present finding was in agreement with work of Amin (2015). Less educated persons were involved in traditional goat farming system but higher number of commercial farmers were higher educated. Educated farmers were more interested to adopt advanced technologies. It has been reported that increased farmer education positively influenced adoption of improved practices (Agwu and Anyanwu, 1996). Agricultural laborers (43.75%) were higher number in traditional goat rearing but Small business holders (60%) were highest in commercial farming system.

**Table 1. Bibliography of traditional and commercial goat rearing farmers.**

Variables	Farming approaches	
	Traditional (%)	Commercial (%)
<b>Age</b>		
25-34 years	26.25	20
35-50 years	53.75	60
Above 50 years	20	20
<b>Gender</b>		
Male	36.25	100
Female	63.75	0
<b>Level of Education</b>		
No formal education	38.75	0
Primary school completed	42.5	0
Secondary school completed	18.75	40
Higher Secondary school completed	0	40
Graduate/or above	0	20
<b>Occupation</b>		
Landless farmer	33.75	0
Agricultural laborer	43.75	0
Small business holders	22.5	60
Service man	0	40

### 3.2. Housing profile of goat both traditional and commercial farming approaches

Both traditional and commercial farming housing characteristics are depicted in Table 2. The survey data revealed that in traditional farming system most of the farmers' goat house were made by earthen wall (76.25%) and floors were non-paved (71.25%) but in case of commercial farming system brick wall (50%) and slatted floor (66.67%) were more practiced. Some farmers of commercial farming system kept their goat in wooden wall (33.33%) and paved floor (33.33%) house. Most of the traditional farmers (77.25%) built their goat's house attached with their own house without maintaining the direction of standard housing system. All commercial farmers (100%) constructed their farms away from their own residences maintaining standard housing direction. In the sense of ventilation all commercial farms were well ventilated and few farmers used artificial source of light but majority traditional farming houses (85%) were no ventilation and higher portions of traditional farming approaches (85%) used artificial source of light.

**Table 2. Housing profile of goat both traditional and commercial farming approaches.**

Housing parameters	Farming approaches	
	Traditional (%)	Commercial (%)
<b>Wall</b>		
Brick	23.75	50
Earthen	76.25	0
Wooden	0	33.33
Iron fence	0	16.67
<b>Floor</b>		
Paved	28.75	33.33
Slatted	0	66.67

Housing parameters	Farming approaches	
	Traditional (%)	Commercial (%)
Non-paved	71.25	0
<b>Location</b>		
Attached with residence	77.25	0
Separate	22.75	100
<b>Direction</b>		
East- west	25	100
Others	75	0
<b>Ventilation</b>		
Well ventilated	15	100
No ventilation	85	0
<b>Source of light</b>		
Natural	15	95
Artificial	85	5

### 3.3. Feeding management of goat in traditional and commercial farming approaches

Feeding management of both farming approaches are illustrated in Table 3. Most of the traditional farming system farmers (85%) provided roadsides and fallow land grasses by tethering (70%) due to lack of grazing lands around their locality. Only fifteen percent farmers cultivated some kinds of grasses and fed those grasses by cut and carry and intermittent grazing system in traditional farming approaches. All farmers (100%) of commercial farming approaches cultivated required amount of green grasses and provided those by cut and carry system. Hundred percent farmers of commercial farming approaches chopped the green grasses before feeding but majority farmers (85%) of traditional approaches did not process grasses before feeding. Hossian *et al.* (2015) found that 65.9% of rural farmers provided green grass to the goat that is slightly contradicts with the present study. Only fifteen percent of traditional farming farmers supplied homemade concentrate feed to their goat at evening. On the other hand, in commercial farming approaches all farmers formulated or bought readymade concentrate feed from market to meet their goats concentrate feed requirement. In view of concentrate feed supplied in traditional farming approaches, goats did not get required amount feed to fulfill their nutrient requirement. By calculating total concentrate feed supplied of traditional farming approaches, 20-25% less feed were supplied compared with commercial farming approaches. Goats are among the most efficient domestic animals in the use water just next to camel (Nandi *et al.*, 2011). Drinking water sources in traditional farming approaches were (48%) tube well, (49.25%) pond and (2.75%) others. Drinking water sources in traditional farming were similar with recent study of Hossian *et al.* (2015). Hundred percent farmers of commercial farming approaches provided tube well water to their goats.

**Table 3. Feeding management of goat in traditional and commercial farming approaches.**

Variables	Farming approaches	
	Traditional (%)	Commercial (%)
<b>Type of grasses</b>		
Natural	85	0
Cultivated	15	100
<b>Feeding system</b>		
Grazing	15	0
Tethering	70	0
Cut and Carry	15	100
<b>Grass processing</b>		
Processed	15	100
Not processed	85	0
<b>Concentrated mixture</b>		
Supplied	15	100
Not supplied	85	0
<b>Source of drinking water</b>		
Tube well water	48	100
Pond's water	49.25	0
Others	2.75	0

#### 4. Conclusions

Black Bengal Goat is a vital component of livestock in Bangladesh. This breed can flourish its potentiality under any kind of production systems. Interestingly, both traditional and commercial farming approaches are practiced for goat production in northern districts of Bangladesh. There are some hindrances concerning housing and feeding management practices which have suppressed influentially the production capability of this breed in both traditional and commercial farming approaches. Government and private organization should take necessary steps to minimize these problems and also should take inevitable measures to create public awareness regarding those problems immediately to boost up Black Bengal Goat production in Bangladesh.

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#### Conflict of interest

None to declare.

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