



## Production performance of goat in Kushtia district of Bangladesh

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### ABSTRACT

Goat rearing is an integral part of many farming systems in Bangladesh. Proper management can provide maximum production of goat. The present study was aimed to know the management system, growth, production parameter and prolificacy of goat at Kushtia district. The data obtained in this study state that smallholder goat farming in Kushtia is increasingly being promoted by development organizations and policy makers as an option to boost incomes of farmers and to improve rural livelihoods. Good management practices were evident, but high variation was found in feeding, health management and general husbandry practices, and this affected the overall performance of the goat production. The number of goats recorded was 260 in 2011, 297 in 2012, and 97 in 2013. There were 123 doe in 2011, 70 in 2012, and 57 in 2013 (up to January). Gestation period of goat at Kushtia district was ranged from 140 to 160 days. Average kidding interval was 208 days. Litter size ranged between 1 and 3 and single birth was highest (28.84%) in 2011 followed by 27.60% in 2012 and 17.52% in 2013. The twin birth was 40.38% in 2011, 39.39% in 2012 and 52.57% in 2013 and triple birth were 30.76%, 32.99% and 29.89% in 2011, 2012 and 2013 (up to January) respectively. The average birth weight was 1.24 kg in 2013 (up to January) respectively. It seemed higher birth weight in 2011 than other years. The study suggest for sustainability of goat multiplication and production performance targeting poverty alleviation, initiative should be commensurate with the farmer's capacity to ensure success, i.e., appropriate messages and technologies based on the understanding of the farmer's production objectives, options and constraints.

**Key words:** Production performance, management, goat, Kushtia, Bangladesh.

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### INTRODUCTION

Most of the people of Bangladesh are poor, landless or with small land. They can rear goat easily rather than cattle. Goat known to be "poor man's cow" can play a vital role in sustaining the livelihood of the rural poor. Although Black Bengal goat is famous for meat, skin and prolificacy, the goat population in Bangladesh is not increasing adequately because of poor breeding practices. The skin of the Black Bengal goat is unique throughout the world (Banerjee 1980). Goats in general are hardy animals and in

wild or semi-domesticated state they rarely suffer from serious disease.

Goats are cud-chewing ruminants they are primarily browsers who prefer brush, foliage on low branches and even bark to grass. Individual goats are sometimes observed getting in their hind legs and pulling down branches so other goats can feed on them. In Kushtia, goat roughage is available like road side grass, durba grass, shayma grass, jackfruits leaves, banana leaves, kheshari leaves, etc. Goats in greater Kushtia and Jessore districts are reared in traditional ways and farmers

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are not interested to cultivate fodder for them. The housing systems in this farm area are not absolutely suitable for goat rearing. But the wooden or bamboo slats are in some cases made in the house about 1-2 feet high from the land. There is no separate sheds for different age and sex of goat. Most of the farmers confined their goats almost all the times with feed and water brought to them. The open walls together with the slatted floor were beneficial in the ventilation of the house but also contributed to cases of pneumonia during cold seasons. Constraints in smallholder goat farming were evident and translated to difficulty to achieving high levels of performance. Farmers did not follow recommended regimes for feed supplementation or routine disease management practices due to the high costs normally associated with concentrates and drugs. It is possible that most of the beneficiaries were not capable of purchasing basic goat inputs. The cost of housing was inhibitive to starting up a goat enterprise, but it simultaneously contributed to a reduction in disease incidences if achieved.

The growth of goat population is much lower than the annual rates of growth required to meet the increasing demand for livestock products, specifically milk and meat. Goats can breed before their first birthday and multiply quickly within a gestation period is 21 to 22 weeks. Good rearing and management system is important to keep better production performance of goat. Therefore, the present study was undertaken to know the production performance of goat under existing management systems of goat rearing in Kushtia district of Bangladesh.

## **MATERIALS AND METHODS**

### **Study Area**

The data used in this study were collected from Kushtia livestock office and goat farmers, Kushtia, during 2011-2013. The number of kids recorded was 260 in 2011, 297 in 2012 and 97 in 2013. There were 123 doe in 2011, 70 in 2012 and 57 in 2013. Gestation period, kidding interval, litter size and kidding rate and birth weight were recorded.

### **Data collection and analysis**

The information was collected by visit and observation, formal and informal discussion informal discussion and from record /register book of farm. Gestation period, Kidding interval,, kidding rate, litter size and, birth weight were recorded to measure the performance of goats in Kushtia district. Collected data were sorted and compiled for analysis. Simple statistical tools were used to analyze the data.

## **RESULTS AND DISCUSSION**

### **Management systems of goat rearing**

Goats in greater Kushtia and Jessore districts are reared in traditional ways and farmers are not interested to cultivate fodder for them. The housing systems in this farm area are not absolutely suitable for goat rearing. But the wooden or bamboo slats are in some cases made in the house about 1-2 feet high from the land. There is no separate sheds for different age and sex of goat. There was no stall feeding in the study area. Most of the farmers confined their goats almost all the times with feed and water brought to them. Field grazing was the main feeding system and individual goats are sometimes observed getting in their hind legs and pulling down branches so other goats can feed on them.

### **Reproductive performances**

#### ***Gestation period***

Gestation period of Black Bengal goat at Kushtia district was ranged from 140 to 160 days. Average gestation period of the present study was almost similar with the findings of some other researchers (Ghosh et al. (1994). Amoah and Bryant (1983) reported that gestation period was shortened approximately by one day for does carrying twins compared to singles. Shelton (1960) observed that female kids tend to be born 1 day earlier than male kids. Amoah and Bryant (1983) reported does with male fetuses have shorter gestation periods than those with female fetuses. Asdell (1929) found shorter gestation length for young than old does. Nevertheless, none of the above factors or other factors that affected gestation length in this farm was impossible to be recorded.

**Kidding interval**

Kidding interval depends on service period and gestation period and also influenced by fertility of the doe (Rahman et al. 1977). Kidding interval ranged from 208 to 210 days. Average kidding interval of Black Bengal goat at Kushtia was 208 ± 1.632 days (Table 1). In this district, selective mating was performed to get healthy kids.

Table 1  
Average kidding interval of doe in Kushtia district.

Year	Kidding interval (days)
2011	208
2012	206
2013	210
Average kidding interval (days)	208 ± 1.632

**Productive performances**

**Litter size and kidding rate**

Litter size ranged from 1 to 3 with an average of 1.71 (Table 2). There was a positive relationship between litter size and age i.e., litter size tended to increase with age of does.

Table 2  
Average litter size of doe in Kushtia district.

Age of goat (year)	Litter size
1-1.5	1
1.5-2.0	1
2.0-2.5	0.5
2.5-3.0	2
3.0-3.5	2.5
3.5-4.0	2.5
4.5->5	2.5
Average litter size of doe	1.71 ± 0.795

The system of management at the study area seemed to have had a positive influence on litter size. The lower average litter size was attributed to inadequate supply of nutrient (Hussain et al, 1983). Amoah and Bryant (1983) established a significant relationship between weight at mating and litter size of does. However, it was not possible to monitor mating weights in this study. Litter size observed by Biswas and Choudhury (2006) was 1.766 which was lower than present result indicating effectiveness of selection process. Average litter size for Black Bengal goat reported to be 1.6 by Husain et al. (2004) and 2.15 by Amin et al. (2001) along with present result confirmed the reputation of Black Bengal goat for high fecundity.

Table 3  
Kidding rate of Black Bengal goats at Kushtia district.

Year	Single birth (%)	Twin birth (%)	Triple birth (%)
2011	28.84	40.38	30.76
2012	27.60	39.39	32.99
2013	17.52	52.57	29.89
Mean	17.52	52.57	29.89

(Number in the parenthesis indicate total number of observation)

From the above table it was evident that the highest percentage of single, twin and triplet birth was in 2011, 2013 and 2012 respectively. It seemed higher birth weight in 2011 than other years; it may be due to more than twin or triple birth weight in this district. Biswas and Choudhury (2006) observed within the range of 60% twin in 3 agro climate condition of West Bengal which does not supports the present study but they observed almost 30-35% single which is near to this study.

**Birth weight**

The lowest birth weight was 1100 gm and highest birth weight was 1400 gm, thus average birth weight at Kushtia district goat farm was 1.24 ± 0.101 kg. Generally, twin and triplet kids are lower

than the single born. Does mate January to June tend to have heavier kids (up to 1400 gm) at birth than those bred August to December. This could be due to proper supply of good forages.

The result of this study is supported by the Eaton and Simmons (1953). They observed that sheep and goats bred to kid in spring (January-June) were significantly heavier than those born in autumn (August-December). Guha et al. (1968) reported that summer born Barbari kids were lighter at birth than those born in winter in India.

Table 4  
Average birth weight (seasonal).

Year	Duration	Birth weight (kg)
2013	January	1.1
2012	Jan-June	1.3
2012	July-Dec	1.2
2011	Jan-June	1.4
2011	July-Dec	1.2
Average birth weight (kg)		1.24 ± 0.101

## CONCLUSION

Goat rearing is profitable and generates income, create employment opportunities, liquidity aspects (cash to meet short term needs), and insurance against risk and provide food security which is used for essential family and social activities. Inadvertently, partial application of good husbandry practices in an attempt to save costs may interfere with this goal. The development of crossbreds between local and exotic goats may be a solution to the prevailing environmental, nutritional, production, diseases and management constraints. Additionally, provision of information on market opportunities in the immediate and external locality of the farmers is essential for good planning of the goat production. Besides, constant training of the farmers, and monitoring, applying a gender analysis to its problem identification and evaluation of production performance are required to guide and entrench introduced technologies.

Additionally goats at Kushtia district playing such role and playing a vital role in socio economic development in Bangladesh, by transferring the knowledge and productive Black Bengal goat to the farmer's level. It can be the model for goat rearing in Bangladesh and encourage the peoples.

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