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## **SOCIO ECONOMIC CONDITION OF BLACK BENGAL GOAT FARMERS AND THEIR GOAT MANAGEMENT IN RURAL AREAS OF NORTH BENGAL REGION, BANGLADESH**

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A study was conducted on 300 farmers of five districts in north Bengal region, Bangladesh to know the socio economic status of farmers and their goat management system. We have found that 82% farmers are Muslim and 70% females are involved with goat farming. Survey showed that 47% goat farmer's age range is (15-30 year) and 68% (46% female and 22% male) farmers are in primary standard level. Landless or small marginal farmers are involved with goat farming (37%). This study reflects that 54% farmer's annual income is within 10,000 Tk whether 37% goat farmers earn between (10,000-20,000 Tk) per year. Only 9% farmers earn more than 20,000 Tk per year. 100% farmers in rural area rear their goat by semi intensive system; 82% and 18% farmers use kacha and paka floor respectively. 86% farmers supply concentrates feed with green grass whereas only 14% farmers do not supply any concentrate feed to their goat. Farmers supplied 2.63±0.05kg/day green grass, 60.00±5.86g/day concentrate and 0.62±0.03kg/day tree leaves per animal during lactation stage. Maximum (61%) farmers have more than 10 goat and 25% have 5-10 no. of goat. The body wt of buckling, doeling, buck and doe were 6.12± 0.04kg, 5.92± 0.06 kg, 8.45±0.10 kg and 7.44±0.04 kg respectively. Most of the farmers (84%) use natural and few farmers (16%) use artificial insemination to their doe. The incidence of pneumonia (61%), fever (43%), diarrhoea (42%) and anorexia (60%) are high in up to 1 month of age. Incidence of goat pox (58%) and alopecia (54%) are high in the age of above 9 months and ectoparasitic infestations (51%) are high in the age of (1-9) months. From above discussions we can concluded that Socio economic condition of farmers in rural area of North Bengal region is not so good. To enhance the production potential of the breed it is essential to introduce superior technologies and to create necessary facilities of improved practices in goat keeping.

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## INTRODUCTION

Black Bengal goat is a promising dwarf goat breed known to be famous for its high adaptability, fertility, prolificacy, delicious meat and superior skin (Devendra and Burns, 1983; Husain et al., 1996). Goats are very important species of livestock; it has short generation intervals, higher rates of prolificacy and high market demand (Amin et al., 2001). The higher demand of meat and skin in the local as well as foreign markets focused the goat enterprise extremely prominent to the vulnerable group of people in the existing socio-economic condition of the country (Husain, 1993). Economy of Bangladesh is mainly driven by agricultural product and livestock is the most viable sector. Livestock is contributing about 2.73% of overall Gross Domestic Products (GDP) and 4.31% export earnings from leather and leather goods of total export, 20% of the population is directly and 50% is partly dependent on this sector (Draft Sixth Five Year Plan, 2010). However, the total livestock population composed of 25.61 million goats, 23.44 million cattle, 14.54 million buffaloes and 3.17 million sheep (DLS, 2014). Poor people who have not ability to buy and rear large ruminants, goat is ideally suited for them. Goat husbandry is becoming an attractive activity mainly among the poor women (Choudhury et al., 2012). Poor people who have not ability to buy and rear large ruminants, goat is ideally suited for them. Goat husbandry is becoming an attractive activity mainly among the poor women (Choudhury et al., 2012). However, goat productions in tropical countries are extensive, semi-intensive, tethering, intensive and integration into crop. Semi-intensive production represents between extensive and intensive production and largely depends on the availability of land (Devendra and Burns, 1982). As goat is contributing a lot in the economy of rural villagers, mainly among the poor family, so to gather update information this study was under taken with the objectives to learn about present status of goat housing, to collect information about feeds and feeding of goats, to know about health care status and to update information about the breeding of Black Bengal goats in the rural villages of study area. Farmers at study sites reared their goat in semi intensive system, though Hossain et al., (2015) reported few goat farmers reared their goats in free range and intensive system. Most of the farmers kept their goats at goat's house but Pattamarakha et al., (1997) found most of the farmers did not have shelters for their goats. Organized stall feeding is practically absent but during adverse climatic conditions farmers keep their goats installs and feed with tree leaves, natural grasses and kitchen wastes (Husain, 1993). Goats are regarded as an intimate and integral part of rural farming systems in Bangladesh. Many of the landless and marginal farmers own 1-5 goats and contribute economically to the subsistence farmers in mixed farming systems (Husain, 1993). There is a old saying that "the goat is the poor man's cow" is still hold true for developing country such as Bangladesh. While dairy cattle and poultry industry are making significant impact as a provider of animal protein in the country, small ruminants, especially goats have become very important in rural economy and nutrition throughout the country.

## METHODOLOGY

The survey was conducted on three hundred (300) farmers and three thousand (3000) goat in five district of north Bengal region, Bangladesh. The study area was Sirajgonj, Natore, Pabna, Bogra and Rajshahi district. Three villages of each district were selected for our survey. The survey was conducted on twenty farmers from each village. Data were collected by pre-structured questionnaire from farmers. Survey time was January 2016 to January 2017. Data on socio-economic condition of goat farmers (religion, sex, age, education, occupation and annual income), management system of goat (housing and feeding) and goat flock information (flock size, age and body wt of goat, breeding and incidence of various diseases) were collected. The data were computerized and analyzed to know about different factors of goat farming as well as farmers. Descriptive statistics menu was used to measure mean values of body weight of goat but analyses were performed for having the farmer's distribution under different studied parameters using the cross tabulation procedure under statistical package for the social sciences (SPSS, 1998) version.

## RESULTS AND DISCUSSION

**Table1.** Socio- economic condition of Black Bengal goat farmers in north bengal region, Bangladesh

SI No.	Socio-economic condition of farmers	Number (%)
1.	Religion	
	Muslim	246 (82%)
	Hindu	54 (18%)
2.	Sex of farmers	
	Male	90 (30%)
	Female	210 (70%)
3.	Age of farmers	
	(15-30) yr male	21 (7%)
	(15-30)yr female	141 (47%)
	(30-45)yr male	60 (20%)
	(30-45)yr female	42 (14%)
	(45-60)yr male	9 (3%)
	(45-60)yr female	27 (9%)
4.	Educational qualification	
	Illiterate female	42 (14%)
	Primary standard female	138 (46%)
	Secondary standard female	30(10%)
	Illiterate male	6(2%)
	Primary standard male	66(22%)
	Secondary standard male	18(6%)
5.	Occupation of farmers	
	Landless/ small marginal farmer	111(37%)
	Agriculture	90(30%)
	Fisheries	60(20%)
	Small business holder	30(10%)
	Service man	9(3%)
6.	Annual income	
	Low income(within10,000tk)	162(54%)
	Medium income(10,000-20,000tk)	111(37%)
	High income(Above 20,000tk)	27(9%)

At study sites (Table 1) about 82% goat farmers are Muslim. 70% females are involved with goat farming. Almost cleaning and washing of goat shed is done by women. Child members also play role in kid rearing and grazing of goats. We have found that 47% goat farmer's age range is (15-30) yr and they are female and 20% farmer's are male whose age range is (30-45) yr. Survey data indicated that educational qualification of Black Bengal goat farmers in rural area of north Bengal region is not so good. 46% female farmers are in primary standard level and 10% are in secondary standard level. The number of illiterate female farmer is 14% and male farmer is 2%. 22% male farmers are in primary standard level and 6% are in secondary standard level. In rural area of north bengal region landless or small marginal farmers are involved with goat farming and it is about 37%. 30% goat farmers are involved with agriculture, 20% farmers are involved with fisheries and 10% farmers are involved with small business. Only 3% service holder people are engaged with Black bengal goat farming. Survey data showed that 54% farmer's annual income is within 10,000 Tk whether 37% goat farmers earn between (10,000-20,000 Tk) per year. Only 9% farmers earn more than 20,00 Tk per year from goat farming in north Bengal region of Bangladesh.

**Table 2.** Housing management of Black Bengal goat in rural area of north Bengal region, Bangladesh

Parameter	Type	Number (%)
Rearing system	Semi intensive	300(100%)
	Intensive	0(0%)
Housing	Kacha	246(82%)
	Paka	54(18%)
Night shelter	Farmer's living room	12(4%)
	Veranda of living room	54(18%)
	Cattle shed	51(17%)
	Goat shed	183(61%)
Floor	Mud	192(64%)
	Brick finished	72(24%)
	Cemented	36(12%)
Provide bedding material in winter season	Yes	285(95%)
	No	15(5%)

Survey data showed that 100% farmer in rural area rear their goat by semi intensive system. Though Hossain et al., (2015) reported few goat farmers reared their goats in free range and intensive system. Most of the farmers kept their goats at goat's house but Pattamarakha et al., (1997) found most of the farmers did not have shelters for their goats. Among three hundred (300) families 82% farmers make their goat shed by paddy straw and bamboo with mud floor (kacha) and 18% farmer make their goat shed by brick with cemented floor (paka). 61% farmers make separate house for goat and some farmers keep goat at night in their living room (4%), in veranda of living room (18%). In addition, 17% farmer keep goat at night in their cattle shed.

**Table 3.** Feeding management of Black Bengal goat in rural area of north Bengal region, Bangladesh

Feeding management	Number of farmer (%)
Concentrate and green grass	258(86%)
Green grass	42(14%)
Stall feeding with green grass	252(84%)
Stall feeding without green grass	48(16%)
Watering once in a day	285(95%)
Watering not counted	15(5%)
Water source (tube well)	222(74%)
Water source (ponds and lake)	78(26%)
Use waterer	285(95%)
Do not use waterer	15(5%)
Particular concentrate feeder	258(86%)
No particular concentrate feeder	42(14%)
Particular green grass feeder	252(84%)
No Particular green grass feeder	48(16%)
Grazing in rainy day	12(4%)
Not allow grazing in rainy day	288(96%)
Only tree leaves in rainy day	120(40%)
Supply tree leaves with green grass in rainy day	180(60%)

Among 300 farmers, 86% supply concentrate feed with green grass whereas only 14% farmers do not supply any concentrate feed to their goat. They only allow green grass to their goat. Hossain et al., (2015) observed that few farmers (19.5%) supplied concentrates with green grass to their goats. 84% farmers supply green grass during stall feeding. 95% farmers provide drinking water to their goat in particular waterer. 84% farmers use particular feeder for green grass and 86% farmers provide separate feeder for providing concentrate feed. About 96% farmers do not allow grazing their goat in rainy day. 60% farmers provide tree leaves with green grass and 40% farmers supply only tree leaves in rainy day to their goats.

**Table 4.** Feed amount allocated at pregnant and lactation stage of goat

Feed type	Stage of goat	Supplied amount/ day/goat
Green grass(kg)	Pregnant	2.51±0.07
	Lactation	2.63±0.05
Concentrate(gm)	Pregnant	80.23±5.61
	Lactation	60.00±5.86
Tree leaves(kg)	Pregnant	0.49±0.02
	Lactation	0.62±0.03

In rural area of north Bengal region the amount of green grass, concentrate and tree leaves that are provided at pregnant stage of goat are  $2.51\pm 0.07$ kg/day,  $80.23\pm 5.61$  g/day and  $0.49\pm 0.02$  kg/day, respectively. Farmers supplied  $2.63\pm 0.05$ kg/day green grass,  $60.00\pm 5.86$ g/day concentrate and  $0.62\pm 0.03$ kg/day tree leaves per animal during lactation stage.

**Table 5.** Flock size of farmers

Flock size (Number)	Number of farmer (%)
Up to 5	42 (14%)
(5-10)	75 (25%)
More than 10	183 (61%)

The survey of the present study reported that maximum (61%) farmers have more than 10 goat and 25% have (5-10) no. of goat.

**Table 6.** Body wt. of goat at different stage

Stage of goat	Mean $\pm$ SE
Birth wt of male kid	$1.56\pm 0.06$
Birth wt of female kid	$1.38\pm 0.06$
Weaning wt of male kid	$5.35\pm 0.16$
Weaning wt of female kid	$4.96\pm 0.15$
Buckling	$6.12\pm 0.04$
Doeling	$5.92\pm 0.06$
Buck	$8.45\pm 0.10$
Doe	$7.44\pm 0.04$

Total 3000 Black Bengal goat were under survey. We divided all goats according to their age to determine the body wt at different stage. Survey showed that birth wt of male kid and female kid was  $1.56\pm 0.06$  kg and  $1.38\pm 0.06$ kg respectively. Weaning wt of male kid and female kid were  $5.35\pm 0.16$ kg and  $4.96\pm 0.15$ kg respectively. The body wt of buckling, doeling, buck and doe were  $6.12\pm 0.04$ kg,  $5.92\pm 0.06$  kg,  $8.45\pm 0.10$  kg and  $7.44\pm 0.04$  kg, respectively. Birth and weaning weight of male kids were higher than that of female kids and birth weight at present study were higher than  $1.28\pm 0.11$  kg (Faruque et al., 2010).

**Table 7.** Insemination method of Black Bengal goat in rural area

Insemination method	Number of farmer (%)
Natural	252 (84%)
Artificial	48 (16%)

At survey region most of the rural farmers (84%) use their own buck or other villager's buck for inseminate their doe and few farmers (16%) use artificial insemination method.

**Table 8.** Various disease incidences (%) at different age groups

Disease	Up to 1 month	(1-9) month	Above 9 month
Pneumonia	61	20	19
Fever	43	30	27
Diarrhoea	42	38	20
Ectoparasite	20	51	29
Pox	17	25	58
Anorexia	60	30	10
Allopecia	13	33	54

Black Bengal goat is vulnerable to rain water and water logging conditions. This breed is usually not suffered from major disease problem for their high disease resistance capacity. Incidence of various clinical manifestations like pneumonia, fever, diarrhoea, ectoparasitic infestation, pox, anorexia, alopecia is common in this breed. Their occurrences are presented above table.

## CONCLUSION

In rural area of north Bengal region, Bangladesh all farmers rear their goat by semi intensive method. Maximum farmers are muslim region. The educational qualifications of farmers are not standard. Women are mostly involved with goat farming. Goat is mostly reared by middle aged farmers. Many of these people rear goat to assist in reaching self-sufficiency. Therefore, goats are considered to play important role in poverty reduction. Most of the farmers keep their goat at night in separate house. Maximum farmers provide bedding materials to the floor in winter season. Maximum farmers provide concentrate feed with green grass. Farmers supplied more amount of concentrate feed their lactating animal than their pregnant doe. They use individual feeder for green grass and concentrate. They supply adequate amount of water to their goat in individual waterer. Flock sizes of the maximum farmers are more than 10 in no. Body weight is always higher in male than female. Most of the farmers use their own buck or other villager's buck for insemination of their doe. Goats are also considered to play role in generating employment, income, capital and improving household nutrition. Due to lack of proper vaccination and deworming goats are suffered from various diseases. To enhance the production potential of the breed it is essential to introduce superior technologies and to create necessary facilities of improved practices in goat keeping. From above discussions we can concluded that Socio economic condition of farmers in rural area of north Bengal region is not so good. They are more careful about feeding than housing, health and breeding of goat.

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