

## Available Feeds and the Quantities Fed to the Large Ruminants in Different Areas of Bangladesh

M.M. Zaman, <sup>1</sup>M.M. Rahman, M.R. Islam, M.K. Hossain and <sup>2</sup>K.A. Khan  
Sylhet Government Veterinary College, Tilagor, Sylhet-3100, Bangladesh

<sup>1</sup>Animal Production Research Division,

Bangladesh Livestock Research Institute, Savar, Bangladesh

<sup>2</sup>V.S.B. Baria, Directorate of Livestock Services, Dhaka, Bangladesh

---

**Abstract:** Feeds and fodder and the quantities fed to large ruminants (cattle and buffalo) in eight different areas of Bangladesh involving 96 farmers were recorded for a year from January 1988 to 1989. Roughage like straw naturally available seasonal green grass and weds, tree leaves, water hyacinth, legumes and sugarcane tops were the major feeds offered to the animal by a bigger proportion of farmers in the study areas. It was found that amount varied ( $P<0.01$ ) from area to area. The overall consumption of straw, green grass, leaves, legumes and sugarcane tops per day and head were  $1.9\pm 2.6$ ,  $5.1\pm 4.9$ ,  $0.3\pm 2.0$ ,  $0.1\pm 1.0$  and  $0.01\pm 0.07$  kg respectively. By product concentrates, mostly rice bran, wheat bran and different oil cakes were offered to the animals in the studied areas. However, the amounts offered also varied ( $P<0.01$ ) from area to area. Consumption of as fed rice bran, wheat bran and oil cakes were  $0.5\pm 0.7$ ,  $0.03\pm 0.1$  and  $0.01\pm 0.03$  kg, respectively. The means and standard deviation indicate a wide range of variations in the amounts of roughage and concentrates offered. Furthermore assignment was the not systematic due to the availability of foodstuffs, lack of knowledge of farmers and consequences of the inefficient utilization of available feed resources. In addition to feeding roughage and concentrates, farmers graded their animals 6.2 h on an average a day. Grazing also varied ( $P<0.01$ ) with different areas. It is thus concluded that feeds and feeding and the assignment amount of roughage and concentrates to the large ruminants are very poor practices of large ruminants exercised in Bangladesh. The assignment amounts are however, not upto the requirement of animals. Feeding animals should be improved by exploring the unconventional feeds of those areas and also by the best management and utilization of available resources. Farmer's knowledge about feeding practices of animals should also be improved to increase animal production in Bangladesh through proper research extension linkages.

**Key words:** Large ruminants, areas, feed, quantities fed, grazing hours

---

### Introduction

The livestock industry in Bangladesh is completely rural and small scale in operation. Commercial livestock production has not yet been developed and it is unlikely to be in the near

future considering the present socio economic context of the country (Ukil and Islam, 1991). The acute shortage of feeds and fodder has long been identified as a serious constraint to optimum livestock production in Bangladesh (Saadullah, 1995) Fibrous crop residues, seasonal weeds and natural grasses, and a meager amount of by-products concentrates are being fed usually to the ruminants (cattle and buffalo) which cannot even achieve optimum production (Rahman *et al.*, 1990). This situation is aggravated by the seasonal unavailability and the inefficient utilization of available foodstuffs and also due to the frequent natural hazards in the country. However, data on the availability of feeds and fodder and their consumption by the large ruminants are scarce and if found available, lack in reliability because they are often very inaccurately estimated and thus often different from the practical situation (Lumanta *et al.*, 1990). To improve animal production as a whole, it is important to know the actual status of feed availability and consumption by large ruminants in rural Bangladesh. The study was thus undertaken to observe the availability of feeds and fodder and their consumption by large ruminants in Bangladesh.

**Materials and Methods**

In order to get a detailed insight into the traditional feeds and fodder and their quantities fed to the large ruminants (cattle and buffaloes) existing in the country, a regular observation was carried out by using standard data sheet in eight different agro-ecological zones from January, 1988 to 1989. The zones were classified according to soil type, temperature regimes, annual rainfall, natural vegetation and cropping practices. The criteria for the classification are given in Table 1.

Table 1: Agro-ecological zones of the experiment

Zones with type	Bovine population (no.)	Soil type	Temp° C		Rain fall (mm)
			Max	Min	
Manikgong (intensive milk pocket area)	46936	Food plain and piedmont soil (calcareous dark Grey and brown flood plain soils) Piedmont soil (Gry terrace soil)	38	10	-
Savar (elevated dry Madhupur tract)	59567	Piedmont soil (Grey terrace soil)	38	10	2953
Serajgonj (milk shed area with pasture land)	84549	Flood plain and piedmont soil (calcareous dark grey and brown flood plain soils)	38	7	1179
Faridpur (riverain area)	39560	Flood plain and piedmont soil (calcareous dark grey and brown flood plain soils)	37	8	1489
Naikhongchari (hilly area)	12032	Hill soil (Brown hill soil)	37	10	2794
Srimangal (tea plantation area)	44514	Flood plain and piedmont soil (Noncalcareous dark grey and brown flood plain soil acid basis clays)	37	9	4017
Kaunia (old flat alluvial basin area)	33848	Terrace and red piedmont soil (Red brown and grey Terrace soil)	37	9	4017
Naogaon (high terraced barind tract area)	72026	Grey terrace soil	38	12	2032

Source: Bangladesh Bureau of Statistics (1986)

From each of the zones a village was selected as a study area and a regular observation was carried out on 12 households per village. In order to draw a complete picture about feeds and feeding, data on the respective cases were collected by visiting each household on three consecutive days of each month throughout the study period. However, data on the following parameters were collected:

- a) Type of feed available
- b) Measurement of daily intake of roughage and concentrates
- c) Daily grazing hours per animal

The collected data were subjected to analysis by using SPSS package.

### **Results and Discussion**

The mean available and consumed roughage as fed and grazing h in different areas throughout the study period is presented in Table 2 and concentrate consumed ( $\text{kg head}^{-1} \text{day}^{-1}$ ) in different studied areas of Bangladesh is presented in Table 3.

#### **Consumption of roughage**

Roughage likes straw, green grass, tree leaves and water hyacinth. Legumes and sugarcane tops etc feint the major feed stuffs fed by most of the farmers in the study areas but varied from area to area in their assignment amount. It was observed that highest amount of straw was offered to the animals at stall in Serajgonj followed by the farmers in Kaunia, Naogaon, Faridpur, Manikgonj and so on. The lowest amount of straw was available for animals in Savar and Srimongol. The highest amount of green grass (mostly naturally grown) was while the lowest amount of the same was offered to the animals at Savar ( $15.21 \text{ kg h}^{-1} \text{ d}^{-1}$ ) while the lowest amount of the same was offered to the animals at Naikhongchari ( $0.24 \text{ kg h}^{-1} \text{ d}^{-1}$ ). Farmers adjacent to the Saver dairy farm had easy access to cut and carry of exotic fodder from the plots of Government dairy farm to feed their animals which in real sense, are exaggerated e.g. feeding of exorbitant amount of green forages to the animals of Savar. It is however, not the true picture of the area as in the whole modhupur tract. On the contrary farmers of Naikhongchari completely rely on grazing in the hilly areas and hence green grass are not generally offered to the hilly areas to the animals at stall. Tree leaves mostly water hyacinth was fed to the animals of Faridour areas ( $1.2 \text{ kg h}^{-1} \text{ d}^{-1}$ ) whereas leaves, mainly bamboo (*Bambusa* spp.) and banana (*Musa* spp) leaves were offered to the animals of kaunia ( $0.6 \text{ kg h}^{-1} \text{ d}^{-1}$ ) and Srimongal ( $0.6 \text{ kg h}^{-1} \text{ d}^{-1}$ ). Naikhongchari, a hilly area where tree leaves are abundant in the stall. Legumes mainly Khesari (*Lathyrus* spp) and matikalai (*Vigna* spp) were mostly fed in Naogaon ( $2.2 \text{ kg h}^{-1} \text{ d}^{-1}$ ) followed by the farmers in Serajgong, Faridpur and Kaunia.

Seasonal legume pulses are extensively grown in those areas during rabi (winter) season and farmers feed their animals through cut and carry (Rahman *et al.*, 1998) and also by pasturing arrangement. Serajgong, a bathan (a special grazing land), where farmer used to grow khesari and matikalai with the receding of flood water for pasturing their animals faced delayed flood retention during the bathan season last year. Therefor, availability of those legumes for animal

Table 2: Roughage consumed (kg head<sup>-1</sup> day<sup>-1</sup>) and grazing h per animal in different studied areas of Bangladesh

Feeds and grazing hours	Naikhong								
	Faridpur	Savar	Naogaon	chari	Serajgonj	Srimangal	Manikgonj	Kaunia	Overall
Roughage:									
Straw	2.7±2.4 <sup>b</sup>	0.9±1.6 <sup>c</sup>	2.8±4.2 <sup>b</sup>	0.9±0.2 <sup>c</sup>	4.2±3.4 <sup>a</sup>	1.1±1.1 <sup>c</sup>	2.1±2.9 <sup>b</sup>	2.9±4.3 <sup>b</sup>	1.9±2.6
Green grass	6.2±7.2 <sup>b</sup>	15.2±9.7 <sup>a</sup>	0.4±1.0 <sup>c</sup>	0.2±1.2 <sup>c</sup>	6.1±7.0 <sup>b</sup>	5.9±4.0 <sup>b</sup>	5.6±6.2 <sup>b</sup>	2.5±3.3 <sup>c</sup>	5.1±4.9
Leaves	1.2±4.5 <sup>a</sup>	0.3±1.8 <sup>b</sup>	0.2±0.8 <sup>b</sup>	0.0±0.0	0.0±30.4 <sup>b</sup>	0.6±1.2 <sup>a</sup>	0.2±1.1 <sup>b</sup>	0.6±2.2 <sup>a</sup>	0.3±2.0
Legumes	0.6±2.7 <sup>c</sup>	0.0±0.0 <sup>b</sup>	2.1±0.2 <sup>a</sup>	0.0±0.0 <sup>b</sup>	1.5±6.6 <sup>b</sup>	0.1±0.2 <sup>d</sup>	0.01±0.2 <sup>d</sup>	0.5±1.90 <sup>c</sup>	0.1±1.0
Leaves and sugarcane tops	0.0±0.0	0.0±0.0	0.0±0.0	0.0±0.0	0.1±0.1 <sup>a</sup>	0.0±0.0	0.0±0.0	0.1±0.6 <sup>a</sup>	0.01±0.07
Grazing h animal <sup>-1</sup> day <sup>-1</sup>	4.2±2.2 <sup>c</sup>	5.5±3.1 <sup>bc</sup>	5.3±1.6 <sup>bc</sup>	9.0±5.3 <sup>a</sup>	6.2±4.3 <sup>b</sup>	4.0±3.2 <sup>c</sup>	5.3±1.6 <sup>bc</sup>	4.2±4.2 <sup>c</sup>	6.2±4.3

Table 3: Concentrate consumed (kg head<sup>-1</sup> day<sup>-1</sup>) in different studied areas of Bangladesh

Feed Conc	Faridpur	Savar	Naogaon	Naikhongchari	Serajgonj	Srimangal	Manikgonj	Kaunia	Overall
Rice bran	0.8±0.86 <sup>a</sup>	0.7±0.9 <sup>ab</sup>	0.4±0.7 <sup>c</sup>	0.0±0.0 <sup>b</sup>	0.8±0.4 <sup>a</sup>	0.4±0.7 <sup>c</sup>	0.7±0.9 <sup>ab</sup>	0.5±0.7 <sup>bc</sup>	0.5±0.7
wheat bran	0.2±0.3 <sup>ab</sup>	0.1±0.01 <sup>bc</sup>	0.0±0.0 <sup>c</sup>	0.07±0.0 <sup>c</sup>	0.0±50.1 <sup>cd</sup>	0.0±30.1 <sup>cd</sup>	0.2±0.3 <sup>a</sup>	0.03±0.1 <sup>cd</sup>	0.03±0.16
Oil cakes	0.0±0.0	0.0±0.0 <sup>c</sup>	0.05±0.03 <sup>a</sup>	0.0±0.0 <sup>c</sup>	0.03±0.07 <sup>b</sup>	0.0±0.0 <sup>c</sup>	0.03±0.07 <sup>b</sup>	0.03±0.03 <sup>b</sup>	0.01±0.03

Similar superscripts in each column do not differ significantly (P<0.0)

was lower as indicated by Hossain (1985). The availability and consumption of sugar cane tops and leaves were very low and negligible and feeding was also observed in Kaunia and Naogaon. Sugarcane tops and leaves are only farmers use it as fuel and rarely as feed for animals. In addition to the consumption of available foodstuffs at stall, farmers of the country grazed their animals during the day period and the mean grazing hours are also compared in Table 2. The mean grazing period was more or less same in the study areas ranging from 4-6 h except at Naikhongchari (9 h a day) which was the highest (P<0.01). Naikhongchari, a hilly area as stated earlier where farmer's grazed their animal in the hillocks and/or in the fields after harvesting crops except in the areas of Serajgong where farmers used to cultivate seasonal legumes during the Rabi season in the Batman and farmers usually grazed their animals in the field. However, farmers grazed their animals 6 h a day (Kibria, 1991) during the whole period of study in the studied areas.

### Consumption of concentrates

Consumption of by product concentrates as fed by the large ruminants in the study areas are shown in Table 3. Mostly rice bran, wheat brain and admixtures of different oil cakes were offered to the animals in a meager amount. Other concentrate ingredients like crushed grain pulses and their brain molasses etc., were not observed to being fed to the animals in the study areas. However, consumption of rice bran (kg h<sup>-1</sup> d<sup>-1</sup>) was higher (P<0.01) in Faridpur (0.8 kg), Serajgonj (0.8 kg), Savar (0.7 kg) and Manikgonj (0.7 kg) than other parts of the study area. These areas are rice intensive and farmers thus allowed rice bran as by product to their animals. Farmers in Faridpur and Manikgonj allowed wheat bran in higher (P<0.01) amount to their animals than in other parts. Farmers of this area cultivate wheat like rice and thus offered there by products. Feeding oil cakes to the animals was a minor feed resource and only a small amount

was given to the animals of Naogaon area ( $0.05 \text{ kg h}^{-1} \text{ d}^{-1}$ ) which was significant ( $P < 0.01$ ) in comparison to other studied areas. Naikhongchari, a typical area where farmers did not allow any by products concentrates to their stocks because of extensive grazing on the hilly slopes and valleys that remain fallow during dry and cool periods.

The assignment amounts of roughage's and concentrates with their deviations indicate that feed offered by the farmers to their animals varied from area to area. Thus the feeding of animal is heterogeneous like the feeding practices of livestock in Bangladesh (Rahman *et al.*, 1990).

#### References

- Bangladesh Bureau of Statistics, 1986. Reports on the Bangladesh Livestock Survey 1983-84. Statistics Division, Ministry of Planning Government of the Peoples Republic of Bangladesh, Dhaka, Bangladesh.
- Hossain, M.A., 1985. Livestock Research in Bangladesh. Proceedings of First National Conference of Bangladesh Animal Husbandry Association. Bangladesh Agricultural Research Council, Dhaka, Bangladesh, pp: 40-50.
- Kibria, S.S., 1991. Animal nutrition status in Bangladesh: Past, present and future. In: Proceedings of the Workshop on Livestock Development in Bangladesh. 16-18 July 1991. Bangladesh Livestock Research Institute, Savar, Dhaka, pp: 94-118.
- Lumanta, G.Q., M.E. Haque, S.S. Kibria, M.M. Rahman, K. Kamaruddin and Z. Ahmed, 1990. I: Assessment of the feed resources in Bangladesh. Training Manual on Feed Resources Assessment. Bangladesh Agricultural Research Council, Dhaka, Bangladesh.
- Rahman, M.M., S. Akhter and M.M. Hossain, 1998. The availability of livestock feeds and feeding practices followed by the farmers of some areas of Mymensingh District. *Bang. J. Am. Sci.*, 27: 119-126.
- Rahman, M.M., M.R. Islam, M.M. Rahman, M.A. Zaman and M.A. Malek, 1990. Study on livestock feeds, fodder and feeding practices in Bangladesh and their nutritive evaluation. Paper presented in the workshop of Bangladesh Agricultural Research Council, Dhaka, Bangladesh.
- Saadullah, M., 1995. Integrated farming system for rural poor (Livestock based). Rural Poor Programme Task Force of BRDB, Dhaka, Bangladesh, pp: 92.
- Ukil, M.A. and M.R. Islam, 1991. Rearing and management of poultry in rural Bangladesh. *Asian Livestock*, pp: 101-104.