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

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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 weeds, 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±2.6, 5.1±4.9, 0.3±2.0, 0.1±1.0 and 0.01±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±0.7, 0.03±0.1 and 0.01±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 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

<table>
<thead>
<tr>
<th>Zones with type</th>
<th>Bovine population (no.)</th>
<th>Soil type</th>
<th>Temp°C Max</th>
<th>Min</th>
<th>Rain fall (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manikgon (intensive milk pocket area)</td>
<td>46936</td>
<td>Food plain and piedmont soil (calcareous dark grey and brown flood plain soils) Piedmont soil (Gry terrace soil)</td>
<td>38</td>
<td>10</td>
<td>-</td>
</tr>
<tr>
<td>Savar (elevated dry Madhupur tract)</td>
<td>59567</td>
<td>Piedmont soil (Grey terrace soil)</td>
<td>38</td>
<td>10</td>
<td>2953</td>
</tr>
<tr>
<td>Seraajgon (milk shed area with pasture land)</td>
<td>64549</td>
<td>Flood plain and piedmont soil (calcareous dark grey and brown flood plain soils)</td>
<td>38</td>
<td>7</td>
<td>1179</td>
</tr>
<tr>
<td>Faridpur (riverain area)</td>
<td>39560</td>
<td>Flood plain and piedmont soil (calcareous dark grey and brown flood plain soils)</td>
<td>37</td>
<td>8</td>
<td>1489</td>
</tr>
<tr>
<td>Naikhongchari (hilly area)</td>
<td>12032</td>
<td>Hill soil (Brown hill soil)</td>
<td>37</td>
<td>10</td>
<td>2794</td>
</tr>
<tr>
<td>Srimangal (tea plantation area)</td>
<td>44514</td>
<td>Flood plain and piedmont soil (Noncalcarious dark grey and brown flood plain soil acid basis clays)</td>
<td>37</td>
<td>9</td>
<td>4017</td>
</tr>
<tr>
<td>Kainia (old flat alluvial basin area)</td>
<td>33848</td>
<td>Terrace and red piedmont soil (Red brown and grey Terrace soil)</td>
<td>37</td>
<td>9</td>
<td>4017</td>
</tr>
<tr>
<td>Naogoan (high terraced barind tract area)</td>
<td>72026</td>
<td>Grey terrace soil</td>
<td>38</td>
<td>12</td>
<td>2032</td>
</tr>
</tbody>
</table>

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 (kg head\(^{-1}\)
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 find 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 kg h\(^{-1}\) d\(^{-1}\)) while the lowest amount of the same
was offered to the animals at Nalkhongchari (0.24 kg h\(^{-1}\) 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 modhopur tract. On the contrary farmers of Nalkhongchari 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 kg h\(^{-1}\)
d\(^{-1}\)) whereas leaves, mainly bamboo (Bambusa spp.) and banana (Musa spp) leaves were offered to
the animals of kaunia (0.6 kg h\(^{-1}\) d\(^{-1}\)) and Srimongal (0.6 kg h\(^{-1}\) d\(^{-1}\)). Nalkhongchari, a hilly area
where tree leaves are abundant in the stall. Legumes mainly Khesari (Lathyrus spp) and matikala
(Vigna spp) were mostly fed in Naogaon (2.2 kg h\(^{-1}\) 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
matikala 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$^{-1}$ day$^{-1}$) and grazing h per animal in different studied areas of Bangladesh

<table>
<thead>
<tr>
<th>Roughage</th>
<th>Faridpur</th>
<th>Savar</th>
<th>Naogaon</th>
<th>Chair</th>
<th>Serajgonj</th>
<th>Srimangal</th>
<th>Manikgonj</th>
<th>Kaunia</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Straw</td>
<td>2.7±2.4$^a$</td>
<td>0.9±1.6$^a$</td>
<td>2.8±4.2$^a$</td>
<td>0.9±0.2$^b$</td>
<td>4.2±3.4$^c$</td>
<td>1.1±1.1$^c$</td>
<td>2.1±2.9$^d$</td>
<td>2.9±4.3$^d$</td>
<td>1.9±2.6$^c$</td>
</tr>
<tr>
<td>Green grass</td>
<td>6.2±7.2$^a$</td>
<td>15.2±9.7$^a$</td>
<td>0.4±1.0$^b$</td>
<td>0.2±1.2$^b$</td>
<td>6.1±7.0$^b$</td>
<td>5.9±4.0$^b$</td>
<td>5.6±6.2$^b$</td>
<td>2.5±3.3$^b$</td>
<td>5.1±4.9$^b$</td>
</tr>
<tr>
<td>Leaves</td>
<td>1.2±4.5$^a$</td>
<td>0.3±1.8$^a$</td>
<td>0.2±3.8$^a$</td>
<td>0.2±0.0$^a$</td>
<td>0.0±30.4$^a$</td>
<td>0.6±1.2$^a$</td>
<td>0.2±1.1$^a$</td>
<td>0.6±2.2$^a$</td>
<td>0.3±2.0$^a$</td>
</tr>
<tr>
<td>Legumes</td>
<td>0.6±2.7$^a$</td>
<td>0.0±0.0$^a$</td>
<td>2.1±0.2$^a$</td>
<td>0.0±0.0$^a$</td>
<td>1.5±6.6$^a$</td>
<td>0.0±0.2$^a$</td>
<td>0.0±0.2$^a$</td>
<td>0.5±1.9$^a$</td>
<td>0.1±1.0$^a$</td>
</tr>
<tr>
<td>Leaves and sugarcane tops</td>
<td>0.0±0.0$^a$</td>
<td>0.0±0.0$^a$</td>
<td>0.0±0.0$^a$</td>
<td>0.0±0.0$^a$</td>
<td>0.1±0.1$^a$</td>
<td>0.0±0.0$^a$</td>
<td>0.0±0.0$^a$</td>
<td>0.1±0.0$^a$</td>
<td>0.0±0.0$^a$</td>
</tr>
<tr>
<td>Grazing h animal$^{-1}$ day$^{-1}$</td>
<td>4.2±2.2$^a$</td>
<td>5.5±3.1$^a$</td>
<td>5.3±1.6$^a$</td>
<td>9.0±5.3$^a$</td>
<td>6.2±4.3$^a$</td>
<td>4.0±3.2$^a$</td>
<td>5.3±1.6$^a$</td>
<td>4.2±4.2$^a$</td>
<td>6.2±4.3$^a$</td>
</tr>
</tbody>
</table>

Table 3: Concentrate consumed (kg head$^{-1}$ day$^{-1}$) in different studied areas of Bangladesh

<table>
<thead>
<tr>
<th>Feed Conc</th>
<th>Faridpur</th>
<th>Savar</th>
<th>Naogaon</th>
<th>Chair</th>
<th>Serajgonj</th>
<th>Srimangal</th>
<th>Manikgonj</th>
<th>Kaunia</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rice bran</td>
<td>0.8±0.86$^a$</td>
<td>0.7±0.9$^a$</td>
<td>0.4±0.7$^a$</td>
<td>0.0±0.0$^a$</td>
<td>0.8±0.4$^a$</td>
<td>0.4±0.7$^a$</td>
<td>0.7±0.9$^a$</td>
<td>0.5±0.7$^a$</td>
<td>0.5±0.7$^a$</td>
</tr>
<tr>
<td>wheat bran</td>
<td>0.2±0.3$^a$</td>
<td>0.2±0.01$^a$</td>
<td>0.0±0.0$^a$</td>
<td>0.0±0.0$^a$</td>
<td>0.0±50.1$^a$</td>
<td>0.0±30.1$^a$</td>
<td>0.2±0.3$^a$</td>
<td>0.0±0.1$^a$</td>
<td>0.0±0.01$^a$</td>
</tr>
<tr>
<td>Oil cakes</td>
<td>0.0±0.0$^a$</td>
<td>0.0±0.0$^a$</td>
<td>0.0±0.03$^a$</td>
<td>0.0±0.0$^a$</td>
<td>0.0±0.07$^a$</td>
<td>0.0±0.0$^a$</td>
<td>0.0±0.07$^a$</td>
<td>0.0±0.03$^a$</td>
<td>0.0±0.03$^a$</td>
</tr>
</tbody>
</table>

Similar superscripts in each column do not differ significantly (P<0.01)

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 Nalkhongchari (9 h a day) which was the highest (P<0.01). Nalkhongchari, 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 (Ibria, 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$^{-1}$ d$^{-1}$) was higher (P<0.01) in Faridpur (0.8 kg), Serajgong (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 kg h⁻¹ d⁻¹) which was significant (P<0.01) in comparison to other studied areas. Naikhongchari, a typical area were farmers did not allow any by products concentrates to their stocks because of extensive grazing on the hilly slopes and valleys that remain follows 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