



Animal Production Strategies in Southern Region of Bangladesh

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Abstract

A survey was conducted in different districts of Barisal division in Bangladesh during May-June, 2008 to assess the production, consumption and marketing of livestock and their products. A total of 114 farmers were interviewed, of which 26, 24, 21, 10, 10 and 9 % were in Patuakhali, Barisal, Barguna, Bhola, Jhalakati and Pirojpur districts, respectively under Barisal division of Bangladesh. The livestock keeping patterns of farm household's were cattle, buffalo, goat, chicken or duck or any combination of these. Cattle and chicken population was high in all farm categories and due to marshy area duck was higher in number compared to other region. Cattle and buffaloes were also reared by share system. Average milk production per cow was found 2.25 liter per day. The small and large farmers sold the highest portion of the product and the medium farmers consumed most of their products. On an average, all farm households spent 29, 18 and 19 % income generated through livestock for their daily expenses, agricultural inputs and food, respectively. On an average, health and veterinary expenditure per household was 6.95 US\$ (1US\$=70BDT). Black quarter (23 %) and Foot and mouth disease (35 %) in cattle, Diarrhoea (39 %) and PPR (29 %) in goat, ranikhet (40 %) and fowl pox (34 %) in poultry were the common disease.

Keywords: Consumption pattern, income generation and socio-economic background

1. Introduction

Twenty five percent people of Bangladesh are directly engaged in livestock sector and 50 percent peoples are partly associated with livestock production (DLS, 2008). Livestock sub-sector contributed about 13.5 % to total agricultural GDP and growth rate was 5.49 % in the year 2006-07, where as 13.3 and 2.41 % were estimated for the year 2007-08, respectively (BBS, 2008). It is estimated that there are about 22.9 million cattle, 1.21 million buffaloes, 20.8 million goats, 2.68 million sheeps, 207 million chickens and 39 million ducks in Bangladesh in the year 2006-07 (DLS, 2008).

Livestock may be regarded as "Cash income" to the rural farmers that is instantly available for sale or barter. Animals are performing a variety of roles, either supplying milk, meat, eggs, power for household and fertilizer for crop production. In Bangladesh, about 80 to 85 % of the households keep livestock in the rural areas and most of landless, marginal and small farmers keep indigenous livestock (Hossain *et al.*, 2004). Local chickens of Bangladesh lay an average of 3 clutches in a year with an average annual egg production of about 46, in scavenging management in rural conditions (Sarker, 2007). Livestock production in Bangladesh is not adequate which is manifested in the low supply and high price of livestock and their products in

the market. Thus, before taking any comprehensive program for the improvement of livestock production and utilization, consumption details, hatching and mortality, marketing and utilization pattern of sale proceeds of livestock and its products should be analyzed very carefully. Now a day, the farmers show interest in the rearing of poultry and livestock for commercial purpose. There are scopes for exploring livestock resources for its development. No significant work has been done on livestock production system in southern region despite the fact that livestock play a fundamental role for agriculture subsistence farming system in the coastal belt of Bangladesh. Therefore, this study was undertaken to:

1. Define socio-economic background, the existing ownership and raising pattern of livestock and poultry.
2. Assess the production, consumption and marketing of livestock & poultry and their products; and
3. Identify the constrains and asses the potentials of livestock production.

2. Materials and Methods

The survey was conducted in 6 districts under Barisal division namely Patuakhali, Barisal, Barguna, Bhola, Jhalakati and Pirojpur. Data were collected through a structured questionnaire. A total of 124 farms raising livestock and poultry belonging to three farm categories based on land holding; small (0.50-2.0 acres) medium (2.1-5.0 acres) and large (above 5.0 acres). The stratified proportionate random sampling technique applied in selecting the farmers. A total of 46 small, 46 medium and 32 large farmers were interviewed. Based on this criterion the result is shown in Table1. The survey was conducted during May to June 2008. The questionnaire was carefully designed contained both open and closed form of structured questions keeping in mind the objectives of the study.

3. Results and Discussion

3.1. Demographic and social backgrounds of farmers

In the survey region, average family size consisted of 5.58, 6.37, 8.54 members and average land size were found as 1.56, 3.23 and 9.43 acres in small, medium and large farmers, respectively. It was revealed from Table 1 that 21.7 % small farmers are illiterate, where as 12.5 % large farmers are higher (above 10 years of schooling) educated. Thirty seven percent medium farmers completed primary and around 35 percent completed secondary level of education. The result is instant to that reported by BBS (2007).

3.2. Livestock ownership pattern

The average number of different species of livestock by different types of household of all locations is shown in Table 2. The average proportion of all farm households kept cattle, buffalo, goat, poultry or any combination of these. Farmers seem to desire keeping assorted livestock rather than a herd or flock of single species. The commonest grouping of all categories was cattle and poultry, followed by buffalo and poultry. The major livestock in the survey areas were cattle, buffalo, goat, chicken and duck. On an average, all farm categories reared 6.7, 2.1 and 12.9 % crossbred in case of cattle, chicken and duck, respectively. The buffaloes were moderate in number.

Table 2 revealed that the average number per farm for small, medium and large farm categories were 2.17, 3.58 and 3.62 for cattle; 1.13, 1.11 and 1.83 for buffalo; 1.06, 0.7 and 1.53 for goat, 11.3, 11.7 and 10.2 for chicken; 5.54, 4.41 and 6.81 for duck and 2.02, 1.65 and 4.06 for pigeon, respectively. Every household has kept about 6-12 chicken. Duck and chicken were maintained in all farm categories and number of duck is higher than that of chicken. Compared to other regions of Bangladesh, which may be due to large amount of marshy and river area in this locality. Saleque (2001); Rahman (2003)

Table 1. Demographic parameters of farmers surveyed in southern region of Bangladesh

Parameter	Categories of farmers			Average
	Small (0.51-2.0 acres)	Medium (2.1-5.0 acres)	Large (above 5.0 acres)	
Family size, no/household				
Male	2.94	3.3	4.6	3.61
Female	2.64	3.07	3.94	3.22
Total	5.58	6.37	8.54	6.83
Land size, acre				
Homestead	0.28	0.43	0.95	0.55
Cultivable land	1.17	2.68	7.46	3.77
Uncultivable land	0.11	0.12	1.02	0.42
Total	1.56	3.23	9.43	4.74
Educational level,%				
Illiterate	21.7	8.7	6.2	12.2
Capable to sign	21.7	13	21.9	18.9
Primary (1-5 years of schooling)	34.8	37	28.1	33.3
Secondary (5-10 years of schooling)	17.4	34.9	31.3	27.9
Higher (Above 10 years of schooling)	4.4	6.4	12.5	7.77

Table 2. Average ownership pattern of livestock

Species	Average number per family			Livestock (%)	
	Small	Medium	Large	Indigenous	Crossbred
Cattle	2.17	3.58	3.62	93.3	6.7
Buffalo	1.13	1.11	1.83	All	-
Goat	1.06	0.7	1.53	All	-
Chicken	11.3	11.7	10.2	97.9	2.1
Duck	5.54	4.41	6.81	87.1	12.9
Pigeon	2.02	1.65	4.06	All	-

Huque and Ukil (1994) reported that almost each rural family usually kept 10-20 chicken, duck or pigeon that are traditionally maintained by the female members of the family and fed on household wastes and crop residues. Khan and Nasrin (2003) reported that natural water bodies might be a potential duck production area of the country.

3.3. Milk production, consumption pattern and marketing system

The average number of milking cow per farm was 1.03 and it was the highest (1.21) in large families and lowest (0.78) in small families (Table 3). About 65 percent families were rearing milking cow in this southern region of Bangladesh. The average lactation period was 206 days and average milk production per day per cow was 2.25 liter. Similar result was also reported by Rahman *et al.* (1993).

Table 3. Milk production by farm categories

Farm category	Av. No. of cow per family	Av. milk production, liter/day	Av. Lactation period, Days	Families having milking cow, %
Small	0.78	1.38	190	54.3
Medium	1.11	2.91	216	69.6
Large	1.21	2.46	212	72.4
Average	1.03	2.25	206	65.4

Table 4. Consumption pattern and marketing of milk by all farm categories

Farm category	Percent of disposal of total product			Selling place, %		Av. Selling price, US\$/ liter
	Consumed	Sold	Distributed	Market	Home	
Small	38.0	52.0	10.0	34.5	65.5	0.43
Medium	46.6	41.6	11.8	29.2	70.8	0.43
Large	45.8	41.3	12.8	43.8	56.3	0.43
Average	43.5	45	11.5	35.8	64.2	0.43

Table 5. Per day average feeding practices for livestock by all farms

Source	Roughage, kg			Concentrate, kg		
	Straw	Green grass	Rice polish	Wheat bran	Oilcake	Molasses
Own	6.18	12.3	0.45	-	0.18	-
Purchased	0.45	-	0.15	0.25	0.35	0.38
Total	6.63	12.3	0.60	0.25	0.53	

Table 4 shows that about 43.5 percent of the total produced milk were consumed, 45 percent sold and only 11.5 percent distributed among their relatives. About 65.5 percent milk was sold at small farmers house area followed by 70.8 & 56.3 percent incase of medium and large farmers, respectively and rest of the milk was sold at local market. On an average, milk was sold @ taka 30 (0.43 US\$) per liter (Table 4). More than 95% of the eggs and live poultry were sold by farmers either at their home gates or at the village market within their vicinity (Das *et al.*, 2007).

3.4. Feeding of livestock

In the study area major feed for livestock is rice straw and other crop residues supplemented with marginal quantities of cereal and oil seed by products and weeds from crop field. Farmers were not aware for feed and fodder production technology to improve nutrition value and intake for animals. All categories of farmers of the study area practice mono-cropping. Most of land in the study region becomes fallow in the Rabi season. Straw, green grass, tree leaves, water

hyacinth, bran, rice polish and oilcake were used as animal feed. Own agricultural byproducts were the main sources for livestock feed but some farmers purchased feed like wheat bran, rice polish, oilcake and molasses for their animals. Table 5 shows that on an average, the farmers of the survey area feed 6.63 kg straw, 12.3 kg green grass, 0.60 kg rice polish, 0.25 kg wheat bran and 0.23 kg oil cake daily for their livestock. Feed source for chicken and ducks is mostly scavenging in the small and medium farms and consists of feeds from natural plant and animal origin.

3.5. Income generation and their utilization

It is seen from Table 6 that on an average, farmers earn from animal farming 595 US\$ per year on total production basis where as higher in medium farmers (705 US\$) and lower in small farmers (416 US\$).

Fig use 2 shows the cash flow of income generated through selling of milk; poultry, livestock and manure.

Table 6. Average yearly income through livestock by all farm categories, US\$/year

Farm category	From livestock, US\$/year			From poultry, US\$/year			Total US\$/year
	Sale of animal	Milk	Others	Sale of bird	Eggs	Others	
Small	148	216	7.20	23.5	18.5	3.22	416
Medium	176	455	8.81	31.4	30.9	3.32	705
Large	187	385	8.79	44.8	33.9	2.90	662
Average	170	352	8.27	33.2	27.8	3.15	595

Note:

1. Milk and eggs were calculated total production basis, sale of bird and animal price were calculated as farmers comment.
2. Milk and eggs price were calculated average local market price basis; Milk @ 30tk (0.43 US\$) / liter, egg @ 5.5tk (0.079US\$) /no. 1 US\$=70tk

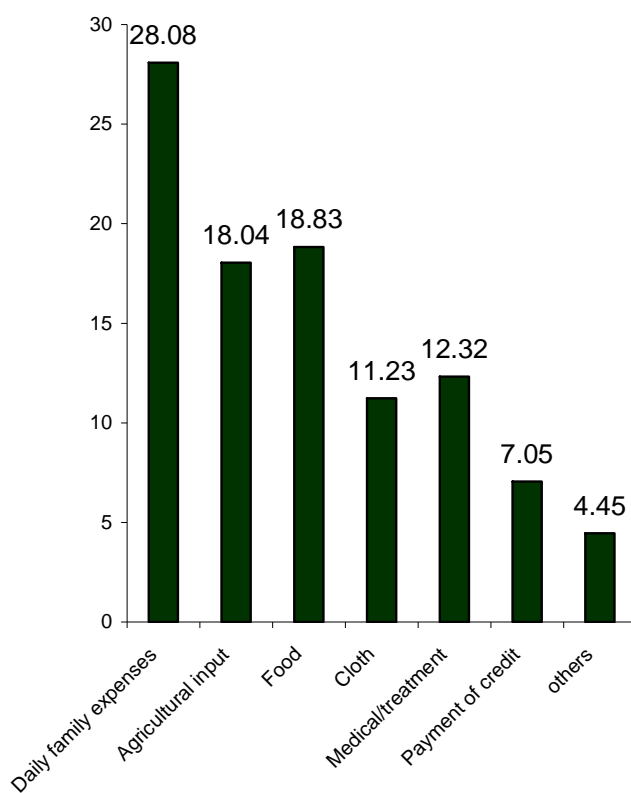


Fig. 2. Utilization pattern from livestock income by all farm categories(%)

Table 7. Major diseases of incidence by animal species and their treatment status

	Percentage of major diseases prevalence in species by farm categories				
	Disease	Small	Medium	Large	Average
Cattle/Buffalo	Anthrax	26.1	10.2	21.2	19.2
	BQ	19.6	28.6	21.2	23.1
	FMD	34.8	36.7	33.3	35
	Others	19.6	24.5	24.2	22.8
Goat/sheep	PPR	27.3	38.5	20	28.6
	Pneumonia	18.1	15.4	20	17.4
	Diarrhea	45.5	30.8	40	38.7
	Others	9.09	15.4	20	14.8
Poultry	Ranikhet	46.4	40	34.5	40.3
	Fowl pox	37.1	37.8	25.8	33.6
	Bird flue	10.7	15.6	29.0	18.4
	Others	5.36	6.67	9.68	7.24
Treatment taken by farmers, %		64.7	67.7	65.2	65.9
Untreated by farmers, %		35.3	32.3	34.8	34.1
Av. livestock treatment cost per year, US\$ / household		5.5	7.34	8.0	6.95

Note: 1 US\$=70Tk.

Table 8. Utility of cow dung by farms categories

Farms categories	Percentage of respondent		
	Manure	Fuel	Others
Small	58.2	32.3	9.50
Medium	64.4	28.3	7.30
Large	72.5	14.9	12.6
Average	65.0	25.2	9.8

The farmers spent most of their income to meet the daily expenses. Almost same observation was noted by Beg *et al.* (1996). On an average, farmer spent 29 percent of the income to meet their family expenses.

3.6. Disease and treatment of livestock

Poor health and medication care revealed in the study area (Table 7), as there was lack of veterinary health care facilities. The farmers have to take treatment for the livestock mostly from village veterinary quack. So, disease is the most detrimental problem that cannot be solved. The common diseases were Black Quarter (23.1 %) and Foot and Mouth disease (35 %) in case of cattle, Ranikhet (40.3 %) and Fowl pox (33.6 %) in poultry and in case of goat PPR (28.6 %) and Diarrhoea (38.7 %). About 66% farmers take

treatment for their cattle and poultry and 35% did not treat. It is also found in the study reported by Hossain *et al.* (2004). Farmers spent on an average about 6.95 US\$ for treating their livestock and poultry every year.

3.7. Handling for farmyard manure

Manure is an important organic fertilizer for crop production. Mostly the small farmers also use cow dung as fuel. Around 58.2% small farmers used cow dung as manure and 32.3% percent as fuel (Table 8), where as 64.4 % medium farmers use as manure and 28.3% as fuel, 12.6 % large farmer use cow dung as plastering of threshing floor and 72.5 % for manure. On an average, 65% farmers use cow dung as manure. Similar result was also reported by Hossain *et al.* (2004).

4. Conclusions & Recommendations

It may be concluded that there is a prospect to increase livestock and poultry farming for small, medium and large farmers in the southern region of Bangladesh. Broiler and layer farm project can be taken by introducing hybrid chicks. Improved large animal through artificial insemination program may boost up the milk production of indigenous cow. Male emaciated cattle and buffalo can be used for fattening program. For mitigation of green grass crisis perennial fodder like Napier, German, and Para in lowing land and production project can be taken in the fallow land. Routine vaccination program is suggested to prevent diseases of livestock and poultry. If the respective agencies can ensure the above mentioned modern technologies and inputs of livestock then it will possible to establish livestock farming to solve unemployment problem and to increase income generation of the rural people significantly.

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