

Chapter-I

Introduction

Bangladesh, highest densely populated country of the world (BBS, 2010) where 84.8% of its population living in villages and depending on agriculture and allied activities for their livelihood (Bureau of Statistics, 1992) and 52.5% of the urban and 44.3% of the rural people was surviving under the poverty line. Major supply of protein comes from the livestock sector of the department of livestock services. About 36 percent of the total animal protein comes from the livestock products in our daily life, 25 percent peoples are directly engaged in livestock production, and 50 percent peoples are indirectly associated in livestock sector. Last year, the contribution of livestock sub-sector to the GDP was 2.95 percent, which was estimated about 17.32 percent GDP to agriculture. Last year, the growth of Livestock in GDP was 7.23 percent (Alam *et al.*, 2011). In this back drop production of animal species has become a crucial factor. There are about 24 million cattle and 14.69 million goats in our country (DLS, 2008-2009). Dairy farmers in Bangladesh are raising their indigenous cows; small in size and low in milk yielding, in a very traditional way giving almost no attention regarding their fodder, medication and genetic improvement. Although there is a general trend to raise cows in Bangladesh, the rural people have not yet undertaken dairy on a commercial scale. Small farmers who rear only a small number of cows in rural area produce most of the milk. They are interested in getting the highest possible return for their milk. On the other hand, consumers want the best milk for their price. (FAO, 2002)

However, the milk marketing and processing systems in Bangladesh are not yet developed. Milk Being perishable item, needing timely and special attention to market, makes the marketing more difficult (FAO, 1990). Generally, rural milk producers sell their surplus milk to various marketing intermediaries prevailing locally who in turn sell the milk to the individual consumers, restaurants & tea stalls in the urban area. In this process marketing intermediaries buy the milk from the farmers at a cheap price and are said to appropriate large profit. Lack of effective marketing organization in the grass-root level is a drawback for the farmers' position in selling milk. Earning money and improving production will be vulnerable if they are unorganized. Under these circumstances the farmers are unable to improve their socio-economic conditions.

The general standard of hygiene applied for milk production in developing countries is poor and hand milking is almost a common practice in developing countries (Chye *et al.*, 2004). It is reported (Abdalla and El Zubeir, 2007) that introduction of hygienic principles for milk production and handling, improvement of management practices, extension programs to the owners and establishing of standards and grades of raw milk should be initiated to ensure good quality of milk. Biosecurity, housing, making of cow shed, proper washing of cow shed, proper drainage system, bedding, feed delivery, manure removal, stocking density, animal rearing, treatment of diseased animal, Insemination record and fresh cow management are predictors of animal health, milk production and overall owner satisfaction .

Dairy accounts for about 12% (FAO, 2010) of agricultural GDP and contributes to the livelihoods of many small-scale farmers in our country through income, employment and food (Bangladesh economic survey, 2009). Smallholder dairy production has thrived since independence in 1972 owing to supportive subsidized services, and guaranteed milk markets and prices for farmers. In order to take advantage of emerging market demands for reducing their poverty, smallholders have to face challenges to improve production costs and productivity (Uddinet *al.*, 2009). In addition, there is a lack of institutional support, research and training, which would be beneficial to the farming environment (Sririet *al.*, 2011). As in many other parts in Bangladesh, therefore, there is a growing need for information about detail householders husbandry practices of cattle and goat and small-scale dairy production parameters to enhance household life styles in the study area. Present study is an endeavor to grasp all types of husbandry practices of cattle and milk marketing system in Anowara Upazilla, Chittagong.

The specific objectives of the study:

1. To know the socio-demographic characteristics of the respondents.
2. To know the status of milk marketing system in the rural areas.
3. To observe the most common disease of the animal in rural areas.

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Materials and Methods

2.1 Description of study area

The present study was conducted in Anowara Upazilla of Chittagong, Bangladesh. The Upazilla consists of one municipality, 11 union and 78 villages with 5000 units of household. The data was collected from the farmers of the village, Anowara during the period of 14 February, 2016 to 24 March, 2016; total 6 weeks.. Majority of households in the village depends on subsistence farming besides crop production. The Villages were selected based on the availability of dairy cattle farming and easy of communication.

2.2 Data collection

For the purpose of this study, a questionnaire was designed. The questionnaire as an instrument has direct and open-ended questions. In open-ended questions, respondents can express their own ideas and views in a free way from multiple-choices characterized direct questions. A total of 46 farmers were selected Constraints were identified by surveyed through a semi-structured questionnaire. Data were collected through face to face interviewing of farmer and personal visits to the randomly selected dairy farming households involved in small scale dairy farming and others were considered as only households (non-farming). Before beginning of the interview, each respondent was given a brief description about the nature and purpose of the study. The questions were asked in a very simple manner with explanation of questions where necessary. A questionnaire was designed to capture information related to general characteristics of the household and the household head; farmland ownership and use housing pattern; production, inputs, costs and profits/income from dairy farming and other households activities; income from non-farm activities; expenditure of income from dairy farming; assets ownership; perceived benefits and constraints to dairy farming. The questionnaire also includes detailed queries pertinent to the following aspects: particulars of the farm owners including the education, fund source and feasibility studies; farms information and it include location, water and electricity supply farm manager, nature of production and building materials; herd structure and size and type of insemination used; milk production and milk marketing and price; system of feeding adopted in the different farms; veterinary services, vaccination, diseases control, culling strategies, cleaning and sanitation practices; farms labours information including their education,

numbers, and experience, extension details including existence of extension sources, application of extension information and follow up of application from sources; and insurance of livestock and problems that facing farmers. On the other hand, a questionnaire for non-dairy farming households involved similar information with the exception to the information related to dairy farming.

2.3 Statistical analysis

The collected survey data were coded and analyzed using SPSS (16.0) system computer program. All the data were analyzed statistically by using the frequency procedure and Chi-Square Test to describe performance and characteristic of house hold farms in Anowara Upazilla, Chittagong.

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RESULT AND DISCUSSION

Socio-demographics:

The age range between 32 and 65 and mean age was 54.59 (SD=7.43). Out of 46 owner, 16 (34.8%) were illiterate, primary educated 10 (21.7%) and secondary educated 20 (43.5%). The average family members were 6 with range 3 to 12. 18 (39.1%) family holds 3 to 5 members, 23 (50%) family holds 6 to 8 members and 5 (10.9%) family hold 9 to 12 members. The average income was 12148 taka per month with range 1500 to 50000. 3(6.5%) had income 5000 taka, 27 (58.7%) income 5001-10000 taka, 7 (15.2%) income 10001-15000 taka and 9 (19.6%) income was greater than 15000 taka. The average family expense in month 9489.13 taka. Income source was based on agriculture was 35 (76.15%) and the remaining 11 (23.9%) was not agriculture based. In another region of the country, Hossain *et al.* (2004), observed that 63% farmers provided closed house and 63% farmers used paved floor. According to Alam *et al.*, 1995 the production cost of farms concentrates took the highest share (35.19%) followed by labour charges (23.64%). The production cost and gross returns for mini dairy farms were higher in large farms (TK. 183,005 and TK. 187,544, respectively), compared to medium and small farms. The benefit-cost ratio of all farms was 1:1.03, indicating that mini dairy farming is economically profitable. In addition, each farm created an annual employment opportunity of 649.70 man-days which was met by both male and female laborers.

Table: 1: Socio-demographics information.

Socio-demographics	Categories	Frequency	Percent
Age	31-40	2	4.3
	41-50	17	37
	51-60	21	45.7
	> 60	6	13
Education	Illiterate	16	34.8
	Primary	10	21.7
	Secondary	20	43.5
Family members	1 to 5	18	39.1
	6 to 8	30	50.0
	9 to 12	5	10.9
Family income monthly	≤ 5000 taka	3	6.5

	50001-10000 taka	27	58.7
	10001-15000	7	15.2
	> 15000 taka	9	19.6
Family expense monthly	≤ 5000 taka	7	15.2
	50001-10000 taka	27	58.7
	10001-15000	7	15.2
	> 15000 taka	5	10.9

Milking System

Out of 46 respondents about 32 respondents had milking cows.

Information about milking cows and breed

23 (50%) respondents had one (1) and 9 (19.6%) respondent had two (2) milking cows at the time of collection of data whereas 14 (30.4%) data had no information. 10 (21.7%) cows were Holestien Frisean and 27 (58.7%) were local breed and 9 (19.6%) information was missing.

Extracting milk

16 (34.8%) respondents were extract milk by goala and 16 (34.8%) respondent extract milk by own self. 8 (17.4%) respondent extract milk by goala with money and 8 (17.4%) 12 (26.1%) respondent keeps 1.5 liters milk for drink and 17 (37%) keep one (1) liter and 1 (2.2%) keeps 2 liters milk.

Selling milk

9 (19.6%) person selling milk to goala; 9 (19.6%) selling milk at home and 12 (26.1%) selling milk to chilling plant. 16 (34.8%) information was missing. 27 (58.7%) selling milk in daily; only 3 (6.5%) preserve milk in freeze and 16 (34.8%) information was missing.

Price of milk

8 (17.4%) sell milk price 40 tk/liter; 14 (30.4%) sell milk price 50 taka/liter and 8 (17.4%) sell milk price 60 tk/liter. 16 (34.8%) information was missing.

Satisfaction of price

9 (19.6%) respondent were satisfied this price; 21 (45.7%) were not satisfied; 16 (34.8%) information was missing. 5(10.9%) want 50 taka price and 16 (34.8%) want 60 taka price and 25 (54.3%) information was missing. 2 (4.3%) persons comment that the milk price is same in the whole year; 28 (60.9%) person comment the milk price varies in the whole year. 2 (4.3%)

comment milk price increase in eid festival; 16 (34.8%) comment it increases puja; 11 (23.9%) comment milk price increase in eid and puja; 17 (37%) information was missing.

Daily milk production and Benefit monthly

The average milk production 4.94 (SD=2.54) liter with range 2 to 12 liter. 14 (30.4%) information was missing. The average benefit from selling milk monthly 4633.33 ± 2977 taka with range 1000 to 15000 taka. The average milk production in traditional farming system is around 1000 liter/cow/year. This result opposes the findings of Uddin *et al.*, (2010). The extensive farming system is more common in study areas where dairying is considered part of the mixed farming agricultural systems.

Utensils used for extracting milk

17 (37%) used plastic bucket and 14 (30.4%) used silver bucket to extract milk and 15 (32.6%) information was missing.

Marketing of milk

16 (34.8%) carrying the milk to market by own self; 14 (30.4%) people came home to take milk and 16 (34.8%) information was missing.

Washing milk pot

13 (28.3%) persons wash milk pot daily once and 17 (37%) wash milk pot two times daily and 16 (34.8%) information was missing.

Obstacle to sell milk

9 (19.6%) comment to transportation problem; 11 (23.9%) comment not getting good price; 2 (4.3%) comment preservation problem; 8 (17.4%) comment transportation problem and not getting good price; 16 (34.8%) information was missing.

Little research has been done on the profitability of dairy cattle rearing in Bangladesh (Alam, 1995; Kabir and Talukdar, 1997). Alam's study results indicate that the production cost of milk per litre from both local and crossbred cows far exceeds its market/selling price. One of the main reasons for high cost of production is the low milk yield per cow (1.5 litres/day for local and 2.5 liters/day for crossbred cows).

Table: 2: Milk marketing system

Parameters	Categories	Frequency	Percent
Milking cows	One	23	50
	Two	9	19.6
Breed	Local	27	58.7
	Holestien Fresian	10	21.7
Extracting milk	Own self	16	34.8
	Gowala	16	34.8
Keep milk in house	One liter	17	37
	One and half liters	12	26.1
	Two liters	1	2.2
Selling milk	To goala	9	19.6
	At home	9	19.6
	Chilling plant	12	26.1
Price of milk	40 taka	8	17.4
	50 taka	14	30.4
	60 taka	8	17.4
Satisfaction with price	Satisfied	9	19.6
	Not satisfied	21	45.7
Expected price	50 taka	5	10.9
	60 taka	16	34.8
Utensils used for extracting milk	Plastic bucket	17	37.0
	Silver bucket	14	30.4
Marketing of milk	Carrying to market by own self	16	34.8
	People collect from home	14	30.4
Washing milk pot	Once	13	28.3

	Twice	17	37.0
Obstacle to sell milk	Transportation problem	9	19.6
	Not getting good price	11	23.9
	Preservation Problem	2	4.3
	Transportation problem+ Not getting good price	8	17.4

Diseases of animals

The most common disease was diarrhea affected 11 (23.91%) animals. Anorexia was found 19.57% animal in the study area. Fever and Anorexia combined occurred as 2%. Fetal disease was PPR (4%) This finding support the finding of Rahman *et al.* (2012) who reported 5.2% PPR cases in cattle. . Actoparasite and endoparasite more or less 2% was found. The percentages of occurrence of fever in this study supports the earlier reports of 5.1% to 12.1% cases of fever in cattle (Pharo, 1987; Hoque and Samad, 1996; Samad *et al.*, 2002; Rahman *et al.*, 2012) and 10.37% and 4.4% fever cases in goats (Hoque and Samad, 1997; Rahman *et al.*, 2012). FMD was found 2% in cattle. This finding support the finding of Samad (2001) and Rahman *et al.* (2012) reported 1.79% and 1.3% cases of FMD in cattle and only one (0.08%) case in goat. Comparatively higher prevalence rates of FMD in cattle have been reported by Rahman *et al.* (1972), Hoque and Samad (1996), Sarker *et al.* (1999) and Rahman *et al.* (1999) who reported 5.71%, 10.05%, 8.58% and 5.78%, respectively.

Table: 3: Most common diseases found in study area.

Disease Name	Affected	Percent
Problem in udder	1	2.17
Rubber jaw of goat	1	2.17
Acidosis	1	2.17
Anorexia	9	19.57
Diarrhoea	11	23.91

Fever	2	4.35
Fever Anorexia	2	4.35
FMD	2	4.35
Myiasis	1	2.17
Poisoning	1	2.17
PPR	4	8.70
Problem in eye	1	2.17
problem in udder	1	2.17
Problem in udder	2	4.35
Reproductive problem	1	2.17
Retained placenta of goat	1	2.17
Swelling of neck	1	2.17
Tick infestation	2	4.35

CONCLUSION

Finally, it can be concluded that Smallholder dairy production was found to be an important and have the potential to poverty alleviation, food security, improved family nutrition and income and employment generation. However, disease, unpredictable milk market, high prices of drugs, feed concentrates and failure of AI were main constraints limiting small-scale dairy production in the study area.

Recommendation

Based on the findings of the study it could be recommended that in order to improve small-scale householders life style by the way of improving dairy production in the study area, there is a need for technical and institutional intervention to alleviate the identified constraints through dissemination of appropriate technologies for better disease prevention strategy, establishing the reliable milk market, availability of drugs with convenient price, feeding, artificial insemination service, improved dairy animals supply and awareness, which will significantly increase milk production and animal performance.

Limitations of the study

There were some limitations in my study. The study period was limited and study area restricted to a particular district, for this reason the findings may not reflect the whole country. There was limited recording system in goat farms under study as a result it was difficult to select valid data. Some of the farmers were not cooperative to give information.

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APPENDIX

Chittagong Veterinary and Animal Sciences University

Khulsi, Chittagong-4225

Internee student

Subject: data collection for husbandary practices and milking system of
Anowara Upazilla

Data:

ID No:

আর্থসামাজিক অবস্থা সম্পর্কে তথ্য:

১। মালিকের নাম-	২। বয়স
৩। লেখাপড়া-	৪। পরিবারের সদস্যসংখ্যা-
৫। পরিবারের মাসিক আয়-	৬। পরিবারের মাসিক ব্যয়-
৭। আয়ের মাধ্যম- (ক) কৃষিভিত্তিক (.....) (খ) কৃষিভিত্তিক না (.....)	৮। গরু ছাগলের বর্তমান সংখ্যা- গাভী () বাছুর () শাড় () ছাগল ()
৯। আগে কতগুলো গরু ছাগল ছিলো? -	১০। এখন কম কেন? -
১১। গরুর জাত কি? -	

গবাদি পশু পালন সম্পর্কিত তথ্য:

হাউজিং:

১। গরুর জন্য আলাদা গোয়াল ঘর আছে? (ক) হ্যাঁ (খ) না	২। গরুর ঘর किसের তৈরী: (ক) পাকা (খ) অর্ধপাকা (গ) খড়ের
৩। গোয়াল ঘরের মেঝেটা কি রকম? (ক) কংক্রিট (খ) মাটি (গ) ঢালাই	৪। গোয়াল ঘর প্রতিদিন কয়বার পরিষ্কার করেন? -
৫। কি দিয়ে পরিষ্কার করেন? -	৬। ভালো পয়ঃনিষ্কাশনের ব্যবস্থা আছে কি? - হ্যাঁ/না

খাদ্য:

১। গরুকে কি খাবার দেন? - (ক) দানাদার খাবার (খ) খড় (গ) কাঁচা ঘাস	২। किसের পাত্রে খাবার দেন? - (ক) চারিতে (খ) বালতিতে
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৩। গরুকে কোথা হতে পানি খাওয়ান ? –
(ক)টিউবওয়েল (খ)পুকুরের পানি

লালন-পালন সম্পর্কিত তথ্যঃ

১। গরু কে লালন পালন করে?-((ক)মহিলা (খ)পুরুষ (গ)উভয়ই	২। গরুকে কিভাবে পালন?-(খ) (ক)ছেড়ে দিয়ে (খ)বেঁধে
৩। গরু কেনার জন্য ঋন নিয়েছেন কি?-((ক)হ্যাঁ (খ)না	৪। যদি নেন তবে কোথা হতে নেন?-((ক)ব্যাক্ষ (খ)এনজিও
৫। গরু লালন পালনের জন্য আংশিকভাবে কারো সাহায্য নিতে হয় কিনা? – (ক)হ্যাঁ (খ)না	৬। গরুকে টিকা সময়মত দিয়েছেন কি?-((ক)হ্যাঁ (খ)না
৭। গরু কি প্রতিবছর বিক্রি করেন?-((ক)হ্যাঁ (খ)না	৮। গরু বিক্রি করে কত লাভ হয়?-(
৯। অসুস্থ গরু ছাগলের চিকিৎসা কে করায়?-((ক)পশু চিকিৎসক (খ)হাতুড়ে ডাক্তার	১০। যদি হাতুড়ে ডাক্তার হয় তবে কেন তাকে দিয়ে চিকিৎসা করান ?-((ক)চিকিৎসা খরচ কম (খ)পশু চিকিৎসক স্বল্পতা (গ)নিকটস্থ প্রাণী হাসপাতাল না থাকা
১১। গরুর পিছনে মাসিক খরচ কত?-(১২। গরু থেকে মাসিক আয় কত?-(

দুধ সম্পর্কিত তথ্যঃ

১। দুধাল গাভী গরু কয়টি?-(২। দিনে কত লিটার দুধ দেয়? -
৩। দুধ কে দোহন করে?-((ক)গোয়াল (খ)মালিক	৪। গোয়াল দোহন করলে তাকে কী দিতে হয়?-((ক)দুধ (খ) টাকা
৫। দুধ খাওয়ার জন্য কতটুকু ঘরে রাখেন?-((ক)১/২ লিঃ (খ)১ লিঃ (গ)২ লিঃ	৬। দুধ কার কাছে বিক্রি করেন ?-((ক)গোয়াল (খ)বাড়িতে (গ)মিল্ক ভিটা (ঘ)চিলিং প্ল্যান্ট
৭। দুধের দাম কত?-((ক)৪০ টাঃ (খ)৫০ টাঃ (গ)৬০ টাঃ	৮। এই দামে আপনি সন্তুষ্ট কিনা? (ক)হ্যাঁ (খ)না
৯। সন্তুষ্ট না হলে কত টাকা হলে ভালো হয়?-(১০। দুধ বিক্রি করে কত লাভ হয়?-(
১১। সারা বছর কি দুধের দাম একই থাকে?-(হ্যাঁ/না	১২। কখন দাম বাড়ে?-((ক)ঈদ (খ)পূজা (গ)রমজান
১৩। দুধ কি প্রতিদিন বিক্রি করেন?-(হ্যাঁ/না	১৪। প্রতিদিন বিক্রি না করলে কিভাবে সংরক্ষিত দুধ বাজারে নিয়ে যান ?-(
১৫। দুধ দোহনের জন্য কিসের তৈরি জিনিস ব্যবহার করেন?-((ক)প্লাস্টিকের পাত্র (খ)স্টীলের পাত্র	১৬। দুধ কিভাবে বাজারজাত করেন?-((ক)নিজে বাজারে নিয়ে যান (খ)মানুষ আপনার বাড়ি থেকে দুধ নিয়ে যায়
১৭। কয়বার ধৌত করেন পাত্র?-(১৮। কোন ঋতুতে দুধ বেশি পান?-(
১৯। দুধ বিক্রি করার ক্ষেত্রে বাঁধা কি? – (ক)পরিবহন সমস্যা (খ)ভালো দাম না পাওয়া (গ)সংরক্ষণ সমস্যা (ঘ)অন্যান্য	

প্রজনন পদ্ধতি সম্পর্কিত তথ্যঃ

১। কোন পদ্ধতিতে গরুকে বীজ দেওয়া হয়?-(ক) পাল দেওয়া (খ) কৃত্রিম প্রজনন	২। যদি কৃত্রিম প্রজনন হয় তবে খরচ কত?-
৩। গাভীর জাত?-	৪। বয়স-
৫। কোন পদ্ধতিতে ভালো ফল পাওয়া যায়?-	৬। কোন পদ্ধতিতে খরচ কম?-

Signature

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BRIEF BIOGRAPHY

I am Tanim Ferdous, daughter of Mr. Ferdous Ul Alam and Mrs. Ferdousi Alam. I am native to Chittagong. I passed Secondary School Certificate examination in 2007 (G.P.A-5.00) followed by Higher Secondary Certificate examination in 2009 (G.P.A-5.00). Now I am an intern veterinarian under the Faculty of Veterinary Medicine in Chittagong Veterinary and Animal Sciences University. In the future I would like to work as a veterinary practitioner and do research on clinical animal diseases in Bangladesh.