Chapter-1

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 notyet 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 (Abdullah 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 standers 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 (Uddin*et al.,* 2009). In addition, there is a lack of institutional support, research and training, which would be beneficial to the farming environment (Sriri*et al.,* 2011). As in many other parts in Bangladesh, therefore, there is a growing need for information about detail householder’s 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 Sadar upazilla, Rangpur.

**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.
4. To improve the condition of the farmers.

Chapter-2

**Materials and Methods**

**2.1 Description of study area**

The present study was conducted at Sadar Upazilla (Upazilla Veterinary Hospital) of Rangpur district in Bangladesh. The data was collected from the farmers of the city corporation area mainly. During the period of 14 February, 2016 to 24March, 2016; total 40 days. Majority of households in this area depends on subsistence farming besides crop production. The areas 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 freeway from multiple-choices characterized direct questions. A total of 46 farmers wereselected. 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 theeducation, 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 labors 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-Squire Test to describe performance and characteristic of house hold farms in SadarUpazilla,

Rangpur.

Chapter-3

**RESULT AND DISCUSSION**

**Socio-demographics:**

The average age of owner50.23years (SD=12.62) with minimum age 23 years and maximum age 70 years. Most 0f the respondent were in (50 to 60)years and 24 (40%) were secondary educated. Out of 60 owner, 10 (16.7%) were illiterate, primary educated 20 (33.3%), secondary educated 24 (40%) and higher secondary educated 6(10%). The average family members were 6 persons and range (2 to 10). Most of the owners had family members 5 to 7.

The average family expense in month was 9468.33 taka (SD=5451.71) with range1500 to 30000 taka whereas most of the owners family expenses in month 5001 to 10000 taka. Income source was based on agriculture was 42 (70%) and the remaining 18 (30%) 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 laborcharges (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 in years | $\leq $ 40 | 13 | 21.6 |
|  | 41-50 | 15 | 25.0 |
|  | 51-60 | 26 | 43.3 |
|  | 61-70 | 6 | 10.0 |
| Education | Illiterate | 10 | 16.7 |
|  | Primary | 20 | 33.3 |
|  | Secondary | 24 | 40.0 |
|  | Higher secondary | 6 | 10.0 |
| Family members | $\geq $ 4 | 15 | 25.0 |
|  | 5 to 7 | 38 | 63.4 |
|  | 8 to 10 | 7 | 11.7 |
| Family expense in month | $\leq $ 5000 taka | 6 | 10.0 |
|  | 5001-10000 | 39 | 65.0 |
|  | 10001-15000 | 9 | 15.0 |
|  | $\geq $ 15000 | 6 | 10.0 |

**Milking System**

Out of 60 respondents about 48 respondents had milking cows.

**Information about milking cows and breed:31** (64.58%) respondents had one (1) and 5(10.4%) respondent had two (2) milking cows at the time of collection of data whereas 12 (25%) data had no information. 10 (16.67%) cows were HolsteinFrisian and 50 (83.33%) were local breed.

**Extracting milk**

14 (28.8%) respondents were extract milk by goala and 35(71.4%) respondent extract milk by own self. 60(100%) respondent extract milk by goala with money. 17 (40%) respondent keeps 0.5 liters milk for drink and 24 (57%) keep one (1) liter and 1 (2.3%) keeps 2 liters milk.

**Selling milk**

 39 (75%) selling milk at home, 1(2%) selling milk to chilling plant and 24 (46.1%) selling milk in milk vita. 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**

12 (19.6%) respondent were satisfied this price; 27 (45.7%) were not satisfied; 21 (34.8%) information was missing. 7(10.9%) want 50 taka price and 21(34.8%) want 60 taka price and 32 (54.3%) information was missing.3 (4.3%) persons comment that the milk price is same in the whole year; 37 (60.9%) person comment the milk price varies in the whole year. 3 (4.3%) comment milk price increase in eid festival; 21 (34.8%) comment it increases puja; 14 (23.9%) comment milk price increase in eid and puja; 22 (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$\pm $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**

22(37%) used plastic bucket and 18 (30.4%) used silver bucket to extract milk and 20 (32.6%) information was missing.

**Marketing of milk**

21 (34.8%) carrying the milk to market by own self; 18 (30.4%) people came home to take milk and 21 (34.8%) information was missing.

**Washing milk pot**

17 (28.3%) persons wash milk pot daily once and 22 (37%) wash milk pot two times daily and 21 (34.8%) information was missing.

**Obstacle to sell milk**

12 (19.6%)comment to transportation problem; 14 (23.9%)comment not getting good price; 3 (4.3%)comment preservation problem; 10 (17.4%)comment transportation problem and not getting good price; 21 (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). Alma’s study results indicate that the production cost of milkper liter from both local and crossbreed cows far exceeds its market/selling price. One of themain reasons for high cost of production is the low milk yield per cow (1.5 liters/day for localand 2.5 liters/day for crossbred cows).

**Table: 2: Milk marketing system**

|  |  |  |  |
| --- | --- | --- | --- |
| **Parameters**  | **Categories** | **Frequency** | **Percent** |
| Milking cows | One | 30 | 50 |
|  | Two | 12 | 19.6 |
| Breed | Local | 50 | 83.33 |
|  | HolsteinFriesian | 10 | 16.67 |
| Extracting milk | Own self | 35 | 58.33 |
|  | Goala | 14 | 23.33 |
| Keep milk in house | One liter | 24 | 57 |
|  | One and half liters | 17 |  40 |
|  | 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 | 13.33 |
|  | 50 taka | 50 | 83.33 |
|  | 60 taka | 2 | 3 |
| Satisfaction with price | Satisfied | 50 | 83.33 |
|  | Not satisfied | 10 | 16.67 |
| Expected price | 50 taka | 10 | 16.67 |
|  | 60 taka | 8 | 13.33 |
| Utensils used for extracting milk | Plastic bucket | 20 | 33.33 |
|  | Silver bucket | 40 | 66.67 |
| Marketing of milk | Carrying to market by own self | 20 | 33.33 |
|  | People collect from home | 18 | 30 |

INFORMATION ABOUT CATTLE DISEASE IN STUDY AREA

The most common disease was diarrhea affected 10 (16.67%) animals. Anorexia was found 5% animal in the study area. Ectoparasite and endoparasite more or less 3.2% 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; Haque 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 5% 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.**

FMD……………………………………………………………………………………5%

Diarrhea…………………….…………………………………………….…….…….16.67%

Anorexia………………………………………………………………………….…….5%

Reproductive Problems…………………………………………………………..…….1.6%

Weakness……………………………………………………………………………….3.2%

Acidosis…………………………………………………………………..…………….1.6%

Fever……………………………………………………………………………………3.2%

Bloat……………………………………………………………………………..…….1.6%

Poisoning……………………………………………………………………….……..3.2%

Pneumonia………………………………………………………………..…………..1.6%

Others…………………………………………………………………...…………….3.2%

No Disease………………………………………………………………….…………43.33%

Present……………………………………………………………………..…………..46.67%

Absent…………………………………………………………………….……………53.33%

**DEWORMING HISTORY**

Given………………………………………………………………………….……….53.33%

Not Given………………………………………………………………………………46.67%

**ADVICE**

By Veterinarian…………………………………..……………………………………90.9%

BY Quack…………………………………………………..…………………………..8.1%

**DEWORMING TIME PER YEAR**

4 Times/Year………………………………………….………………………………...45.5%

3 Times/Year……………………………………………..……….…………………….33.3%

2 Times/Year………………………………………………………………….…………21.2%

Figure 1: Graphical presentation of data for diseases

Table: 4:

**INFORMATION ABOUT CATTLE HOUSING:**

**SEPARATE COWSHED**

Present…………………………………………..…………………………………………..75%

Absent……………………………………………..…………………………………………25%

**COWSHED MADE**

By Bricks…………………………………………………………………………………….13.16%

By semi paka………………………………………………………………………………39.50%

By Straw……………………………………………………………………………………..47.36%

**COWSHED FLOOR MADE**

By Concrete…………………………………………………………………………………26.31%

By Soil………………………………………………………………………………………….55.26%

By Cementing……………………………………………………………………………….18.42%

**COWSHED CLEAN (TIME/DAY)**

1 Time/Day…………………………………………………………………………………….38.46%

2 Times/Day……………………………………………………………………………………58.97%

3 Times/day…………………………………………………………………………………….2.56%

**COWSHED CLEAN**

By Sweep…………………………………………………………………………………………100%

**SANITATION**

Good……………….....……………………………………………………………………………52.94%

Bad……………………………………………………………………………………………………47.05%

Figure 2: Graphical presentation of data for cowshed

Table:5:

**INFORMATION ABOUT CATTLE FEEDING**

Concentration…………………………………………………………………………………..16.67%

Roughages………………………………………………………………………………………...46.67%

Green Grass……………………………………………………………………………………….36.67%

**FOOD POT**

Manger………………………………………………………………………………………………..83.33%

Plastic bucket……………………………………………………………………………………….6.67%

Silver bucket…………………………………………………………………………………………10%

**WATER SOURCE**

Tube-Well……………………………………………………………………………………………..100%

Figure 3: Graphical presentation of data for feeding

**Conclusion**

Milk is one of the best foods containing all kinds of essential nutrients for body. It is the world widely granted infant supplementary food. But it was observed that most of the dairy farmers were small in size, their milk production low and they market the surplus milk after consumption in the village level farm and not scientifically established in the urban area. From the above study we found that farmers were following dominant marketing channels for selling major portion of their milk according to the locations. Price fluctuation, transportation, and high feed cost in marketing are major constraints for the small dairy farmers. The seasonal price fluctuation was higher for village as well as at urban markets.

Milk producers frequently suffer from low price, seasonal price fluctuation and irregular payments. Middlemen on the other hand, appropriate larger margins from milk market often mixing fresh milk with water and powder milk. The milk quality supplied to urban markets through middlemen was not of good standard and price of milk varied according to different types of consumers even at the same market. Generally, the infrastructures for fluid milk marketing are not available in the markets. Lack of infrastructure also damages the quality of milk. But the cooperative provides all modern marketing facilities to their members for marketing their milk. Therefore further development of dairy farming depends upon the organized marketing channel to reduce hankering of middlemen in which farmer can get fair price from their fluid milk. Then milk will be available to the general consumer at reasonable price.

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