

**A SOCIO-ECONOMIC STUDY ON SMALL SCALE RURAL DAIRY  
FARMS AT SOME SELECTED AREAS OF CHAKARIA UPAZILA  
UNDER COX'S BAZAR DISTRICT**



A production report presented in partial fulfillment of the  
requirement for the degree of

**Doctor of Veterinary Medicine**

**A Report submitted by**

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**Intern ID: 75**

**Session: 2016-2017**

**Faculty of Veterinary Medicine**

Chattogram Veterinary and Animal Sciences University  
Chattogram-4225, Bangladesh

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## LIST OF ABBREVIATIONS

%	- percentage
No	-Number
ULO	-Upazila Livestock Officer
AI	-Artificial insemination
USD	-United states dollar

## ABSTRACT

This study was carried out to evaluate the socio-economic performances of semi intensive rural dairy farming system to submit an internship production report for partial fulfillment of awarding DVM degree from FVM in CVASU. From April-May 2023, this study was conducted during internship placement at ULDC hospital at Chakoria Upazila. The selected villages was Betuarkul from Bheola Manikchar, Rampur from Saharbil, Kuchpara from Chiringa, Soaliapara from Kaiarbil, and Akbaria para from Purba Bara Bheola union under Chakaria Upazilla. During collection of data mainly collected the general profiles of the dairy farmers and data regarding assessing cost and returns of dairy enterprises. Ten (10) dairy farms were selected under LDDP project dividing two categories where 5 was small scale having less than 5 cow's category-I and other having 5-10 dairy cow as category-II for collection of data for this study.

The study result's indicated that, most of the dairy farmers possessed almost same social status except few one which are summarized and indicated in Table-1. The main specific objectives were assessing farm profitability like as Gross Margin, Gross Return and Net Return per cow per lactation. The estimated GM, GR and NP per cow per lactation was estimated at Tk.52,000, Tk. 62,247; Tk. 20,000, and Tk.34,287, respectively. The Benefit Cost Ratio (BCR) were accounted for category –I and Category-II type of dairy enterprises and it was found 1.50:1 and 1.34:1, respectively which indicated dairy enterprising is a profitable agribusiness in the study areas.

The study identified some crucial problems of raising dairy cows in the study areas like as high prices of feeds & fodder, low prices of milk, scarcity of quality feeds & fodders, conception failure, variation in market demand of produced milk and inputs, insufficient vet. Care & services, occurrences of diseases distance of A.I. point, lack of training & extension work, fraudulent practice by milk traders and daily labours, non-availability of good bull/semen, lack of credit facilities and feed poisoning and mineral deficiency. Finally, suggested here few policy recommendations for making dairying as sustainable and profitable agribusiness in the study areas.

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**Keywords:** Small scale dairy, general profiles of dairy farmers, Farm profitability, Problems and Policy recommendations.

# CHAPTER-I

## INTRODUCTION

### 1.1: Background of the Study

In Bangladesh, a densely populated developing country in northeastern South Asia, the bulk of the rural population relies on both crop and non-crop agricultural industries, for a living. The livestock sub-sector is essential to traditional farming and boosts the economy at large. Livestock had the highest per-year growth rate of GDP in 2004–2005 of any subsector, according to Bangladesh Economic Review, 2006 (S. Uddin, 2010). According to DLS (2000), the supply of locally produced meat, milk, and eggs has increased by 1.2% annually. In Bangladesh, the livestock sub-sector supplied 13% of all foreign exchange profits and produced 20% of the country's full-time jobs (BBS, 2004).

According to DLS (2002), there are around 24.4 million cattle, 34.4 million goats, 0.83 million buffaloes, and 1.14 million sheep living in Bangladesh. In comparison to Brazil, Ethiopia, India, and 90 big ruminants per square kilometer (Sq.km), the country has one of the greatest cattle densities (Karim, 1997). Dairy cattle make up one million of this population (DLS, 2008), of which 92% are native and 8% are crossbred (BBS, 2006).

There are 140 million people living in Bangladesh, and more than 15 million of them households, or more than 80% of the population, reside in rural areas. About two thirds of the households are livestock owners. The country has the highest population density in the world (apart from small island nations and city-states), with approximately 1 000 people per square kilometer, despite the fact that population growth is slowing. According to recent human development reports from the United Nations Development Programme (UNDP), the declining per capita land resource is one of the reasons for the country's continued poverty: The bottom 40% of the population owns just 3% of the entire land area, more than half of the population owns less than 0.5 acres, and 48% of people live in poverty. According to estimate the poverty line; and 30 percent consume less than 1 900 calories per day (the minimum desired level is 2 300 calories) (*S.A.M.A.Haque- FAO*).

Two-thirds of all jobs are produced by agriculture, which also contributes a quarter of all export revenue and ensures the population's access to food. In the mixed-farming system of the nation, crop production and animal husbandry are interconnected, with livestock fulfilling Bangladesh is home to 140 million people, and more than 15 million of those homes, or more than 80% of the population, live there. The percentage of households that own animals is around two thirds. Despite the fact that population growth is decreasing, the nation has the highest population density in the world (outside of small island nations and city-states), with about 1000 people per square kilometer. Recent United Nations Development Programme (UNDP) assessments on human development indicate that the falling per-capita land resource

is: The bottom 40% of the population owns just 3% of the entire land area, more than half of the population owns less than 0.5 acres, and 48% of people live in poverty. multiple functions, including the provision of food, nutrition, income, savings, draught power, manure,. In the mixed-farming system of the nation, crop production and animal husbandry are interconnected, with livestock fulfilling Bangladesh is home to 140 million people, and more than 15 million of those homes, or more than 80% of the population, live there. The percentage of households that own animals is around two thirds. Despite the fact that population growth is decreasing, the nation has the highest population density in the world (outside of small island nations and city-states), with about 1000 people per square kilometer.

In 2006, the livestock industry provided 3% of the nation's GDP, or around 18% of the GDP from agriculture. The value added of the livestock sub-sector nearly doubles to around 6 percent of GDP when the indirect advantages of draught power and manure for fuel and fertilizer are added to the direct economic output of meat, milk, and hides. For many marginal farmers who raise crops primarily for subsistence or who have little to no land at all, livestock also offers a crucial financial reserve and reliable cash flow. 23 million cattle, 1.2 million buffalo, 20 goats, and over 3 million sheep make up the country's herd. 2.27 million tons of milk were produced in 2006, primarily by cows giving 200 to 300 liters per day on average.

Over a lactation of 210/300 days, yields in the few specialized locations where cross-breeding has occurred range from 1000 to 3000 liters. Till very recently, tea and traditional sweets were the main uses for milk, a byproduct of cattle. Currently, the amount of milk per person is between 40 and 50 grams per day (14 to 18 kg annually). About 20 000 tonnes of milk powder are imported each year, with an estimated market worth of US\$70 million (BB, Annual Report, 2006), filling the majority of the supply-demand gap. Approximately 6-7 percent of global consumption, or 0.16 million tonnes of liquid milk equivalent, is supplied by imports each year, which also provide an estimated 55 percent of the official dairy market.

Although the nation has no set nutritional objectives, Two of the Millennium Development Goals (MDGs)—halving poverty and under nutrition—were outlined in the government's National Strategy of Accelerated Poverty Reduction (NSAPR, 2005). According to the plan paper, while the livestock industry as a whole expanded by 3% in the 1990s, poultry showed the most astounding development rate, increasing by about 10% annually since the middle of the 1970s. Due to poor productivity and the fact that production is still predominantly for subsistence and is widely spread, the growth in milk production has generally followed the general trend in the livestock industry. The demand for livestock products including meat, milk, and eggs will keep rising as urbanization and income levels rise.

Currently the Department of Livestock Services (DLS) is implementing country wide IDA funded a development project for the development rural Dairy sector in Bangladesh. The plan aims to replace imports, which presently account for between 10 and 20 percent of yearly consumption, with local milk production. To get over the limitations, the plan encourages production, processing, and marketing firms established in the community. Thus, it is anticipated that smallholder milk producers will be crucial to achieving the goal and, in doing so, assisting Bangladesh in achieving the MDGs for nutrition and reduce poverty by creating huge self-employment in the livestock sector in Bangladesh.

### **1.2: Objectives of the study**

The overall objectives of the study to examined the farm profitability and identifying the major constraints of small scale rural dairying in the study areas with a view to submit a production report for awarding DVM degree. **The specific objectives of the study were as follows:**

- (i) To describe the social characteristics of the dairy farm owners in the study areas;
- (ii) To examine the farm profitability per cow per lactation of the studied dairy enterprises;
- (iii) To identify the major constraints of dairying and make policy recommendations for sustainable development of the dairy industry in the study areas.

### **1.3: Justification of the study**

It can be seen from this study that, dairy farming practices have been facing a number of remarkable problems. If those problems could be reduced, small scale dairy farm owners and youth group of people would be interested in dairying practices commercially. Thus, small scale dairying would provide an opportunity to generate employment opportunity to the unemployed people and would be able to earn more cash income, as a result it can play an important role in youth empowerment and poverty alleviation.

## CHAPTER-II

### METHODOLOGY OF THE STUDY

#### 2.1: Selection of study areas:

For the purpose of conducting a field-based experiment, a two-stage stratified sampling approach was used to choose the sample farmers. Five unions were purposefully chosen from milk pocket regions for the initial round. From each union, one Village was then chosen. Betuar kul from Bheola Manikchar, Rampur from Saharbil, Kuchpara from Chiringa, Soaliapara from Kaiarbil, and Akbaria para from Purba Bara Bheola under Chakaria Upazilla were the locations that were specifically chosen.



Figure-1: Study Area Map

## **2.2: Selection of sample farms for the study:**

Small scale dairy farms in two categories were purposefully chosen as the sample farms. Under five unions, the chosen commercial dairy farms were divided into two sizes: small (fewer than five milk cows) as category-I, medium (between five and ten) as category-II. Five unions were visited initially in order to choose samples for in-depth analysis based on their opinion and the density of dairy farms. From each union 2 dairy farms where 1 small-scale and 1 medium-scale were selected to indepth study.

## **2.3: Study type and data collection**

It was decided to conduct an analytical cross-sectional study with a detailed survey technique. Directed interviews with the farm owner, manager, and/or staff were utilized to gather information using a structured questionnaire made up of a combination of closed, semi-open, and open-ended questions. The study's objectives were followed in the preparation of the questionnaire, which was designed to gather data on important topics such farmers' socio-economics, farm resources, management techniques, production, and farm profitability.

## **2.4: Method of data collection, time and reliability of data**

Directly I visited the sample farms to gather the necessary information from the owners regarding general characteristics profiles and economic point of view. The study author himself altered and coded the data in CVASU female hall in consultation with internship supervisor sir after cross-checking them with the gathered data to ensure consistency.

## **2.5: Data Collection, Analytical Technique and Estimation of Economic profitability**

In total 15 chosen dairy farms were screened primarily and in total of 5 small scales and 5 medium category dairy farms were selected randomly from this screened list of farmers for collection of data as per study objectives. All data processing involved editing, coding, and tabulation in the office and out in the field. Microsoft Excel was used to design the data entry template. Cross-checks for consistency and keyboard errors were also found and fixed before further processing. In this study, the farm business analytical tools were applied to calculate the

net profitability per cow per year. Descriptive statistics including mean, percentage, ratios, and ranking were also used to analyze the data.

## **2.6: Measures of farm profitability:**

### **2.6.1: Annual farm cost/expenses:**

Based on both annual variable expenses and fixed or overhead expenditures, the total annual cost of running a farm was calculated. The cost of feed, hired/contract/daily labor 162 and imputed family labor, cost of curative and preventative care, annual breeding cost, and annual transport cost are among the factors used to compute annual variable costs. The annual overhead or fixed cost calculation includes wages and allowances for permanent farm employees, annual maintenance and operating costs for farm utilities, vehicles, and structures, annual farm operation costs (utility-power, water, gas), and other annual business expenses like telephone, travel, farm consultancy fees, farm improvement initiatives, and unforeseen or additional costs in farm operation.

### **2.6.2: Annual farm income:**

The income from annual farming operations was calculated by adding the returns/receipts from the annual sales of animal products (milk sales), live animal sales (including young sales), saleable annual farm by products (dung, biofuel, biogas), miscellaneous income from seasonal crops and vegetables grown on farm land (farm by 155 products & miscellaneous sales), and increase in stock values at year's end.

### **2.6.3: Annual farm operating profit:**

According to the methodology outlined by Makeham and Malcom (1995), an annual farm operating profit was computed using the following formula: a)  $\text{Gross Margin} = \text{Total Annual Income (BDT)/Receipts} - \text{Total Annual Variable Costs}$ . b)  $\text{Gross margin minus annual fixed costs and total overhead equals farm operating profit/ net return}$ .

### **2.6.4: Annual operating profit/cow:**

The annual farm operational profit (in BDT) was divided by the average number of cows on the farm (number of cows on the farm over the 12 months prior to the survey + the number of cows still on the farm at the end of the survey divided by two).

## CHAPTER-III

### RESULTS AND DISCUSSIONS

In this chapter focused on discussion of the study results on Farmer's social characteristics and economic performances of the selected dairy farming practices in the study areas.

#### 3.1: Describing the general profiles of Small Scale Dairying Farm owners:

Table-1 summarizes general profiles of socio-demographic traits of small-scale dairy farm owners in respect to various levels of farm sizes. The age bracket of 30-45 years is where the biggest percentage of farm owners (50.00%) is found, followed by that of under-30 years (30.00%) and over-45 years (20.00%).

**Table-1: Socio-Economic Profiles of Dairy Farm owners at different categories of farms:**

Particulars of Variables	Number of Farms under different Farm Categories		
	Small Sizes Farm (<5 Cows)	Medium Sizes Farm (5 to 10 Cows)	ALL Farm (N=10)
	N = 5	N=5	
<b>Age of Farm Owner:</b>			
Below 30 Yrs	1 (20.00)	2(40.00)	3 (30.00)
30- 45 Yrs	3 (60.00)	2(40.00)	5 (50.00)
Above 45 Yrs.	1 (20.00)	1(20.00)	2 (20.00)
<b>Educational status:</b>			
Primary to Secondary	3 (60.00)	2 (40.00)	5 (50.00)
Higher Secondary	1(20.00)	2(40.00)	3 (30.00)
Graduate and above	1 (20.00)	1(20.00)	2 (20.00)
<b>Sources of income of Farm Owner</b>			
Dairying only	2 (40.00)	1 (20.00)	3(30.00)
Both Dairying & Cropping	1 (20.00)	2 (40.00)	3 (30.00)
Both Dairying & other	1 (20.00)	1( 20.00)	2 (20.00)
Business			
Dairying & Services	1(20.00)	1 (20.00)	2(20.00)
<b>Income level of the Farm Owner</b>			
Below Tk. 500,000	3 (60.00)	1 (20.00)	4 (40.00)
Tk. 500,001-Tk.10,00,000	1(20.00)	3(60.00)	4 (40.00)
Above Tk.10,00,000	1 (20.00)	1 (20.00)	2 (20.00)
<b>Occupational Status:</b>			
Dairying only	2(40.00)	1(20.00)	3 (30.00)
Dairying & cropping cultivation	2 (40.00)	2(40.00)	4 (40.00)
Dairying & other	1 (20.00)	2(40.00)	3 (30.00)
Business			

**Source: Field survey, 2023**

The majority of dairy proprietors were found to have higher secondary literacy rates of (30.00%), primary to secondary literacy rates of (50.00%), and graduation to postgraduate literacy rates of (20.00%). Only 30.00% of farm owners considered dairying to be their primary source of revenue, dairying as a side business (20.00%), and dairying as a source of income for 30.00% of farm owners (table- 1).

**Table-2: General information of studied Dairy Farm owners at different categories of dairy farms**

Particulars of Variables	Number of Farms under different Farm Categories		
	Small Sizes Farm (<5 Cows) N = 5	Medium Sizes Farm (5 to 10 Cows) N=5	ALL Farm (N=10)
<b>Type of Farming:</b>			
Farming as a main business (Commercial)	2 (40.00)	3 (60.00)	5(50.00)
Extra income (Semi Commercial)	3 (60.00)	2 (40.00)	5 (50.00)
<b>Year of Farming:</b>			
‘Below 5 Yrs	2 (40.00)	1(20.00)	3 (30.00)
5 - 10 Yrs	2 (40.00)	3(60.00)	5 (50.00)
Above 10 Yrs	1 (20.00)	1(20.00)	2(20.00)
<b>Ownership of Farm</b>			
Owned	3 (60.00)	2(40.00)	5(50.00)
Rented in	1 (20.00)	1(20.00)	2 (20.00)
Shared in	1 (20.00)	2(40.00)	3 (30.00)
<b>Nature of Financing for operation</b>			
Fully Own Financed	2 (40.00)	1 (20.00)	3 (30.00)
Both own and Bank Financed	1 (20.00)	1(20.00)	2 (20.00)
Fully Bank Financed	1 (20.00)	1 (20.00)	2 (20.00)
Borrowed from Relatives etc.	1 (20.00)	2 (40.00)	3 (30.00)

**Source: Field survey, 2023**

However, there was no discernible correlation between farm sizes and the owners' differences in educational attainment, primary occupation, and agricultural objectives. About 50.00% of the farmers doing it as a main source of business. Ownership of the farm as owned regarded about 50.00 % .About 30.00% financing for operation is about fully own financed.(Table 2)

### 3.2: Distribution Herd sizes of the small scale dairy farms:

The distribution of herd sizes in the observed small-scale commercial dairy farms, including milch cows, dry cows, heifers, calves, bulls, and bullocks, was analyzed and is shown in Table 3.

**Table -3: Distribution herd size of Small scale dairy farms according to age under different categories of dairy farms**

Particulars of Variables	Total Number of Farms under different Farm Categories		
	Small Sizes Farm (< 5 Cows) N=5	Medium Sizes Farm (5-10 Cows) N=5	ALL Farm (N=10)
<b>Milch Cow:</b>			
Below 5 Yrs	2(40.00)	3 (60.00)	5 (50.00)
5 to 7 Yrs	2(40.00)	1 (20.00)	3 (30.00)
Above 7 Yrs.	1 (20.00)	1 (20.00)	2 (20.00)
<b>Dry Cow:</b>			
Below 5 Yrs	3(60.00)	1 (20.00)	4 (40.00)
5 to 7 Yrs	1(20.00)	3 (60.00)	4 (40.00)
Above 7 Yrs.	1(20.00)	1 (20.00)	2 (20.00)
<b>Heifer:</b>			
Below 12 months	3(60.00)	2 (40.00)	5 (50.00)
12 to 20 months	1(20.00)	2 (40.00)	3 (30.00)
Above 20 months	1(20.00)	1 (20.00)	2 (20.00)
<b>Calf</b>			
Below 6 months	2(40.00)	1 (20.00)	3 (30.00)
6 to 12 months	2(40.00)	3 (60.00)	5 (50.00)
Above 12 months	1(20.00)	1 (20.00)	2 (20.00)
<b>Bull</b>			
Below 3 Yrs	3(60.00)	2 (40.00)	5 (50.00)
3 to 5 Yrs	1(20.00)	2(40.00)	3 (30.00)
Above 5 Yrs.	1(20.00)	1 (20.00)	2 (20.00)
<b>Bullock</b>			
Below 5 Yrs	2(1.38)	3 (60.00)	5 (50.00)
5 to 7 Yrs	2(1.66)	1 (20.00)	3 (30.00)
Above 7 Yrs.	1(0.69)	1 (20.00)	2 (20.00)
<b>ALL</b>	<b>30 (100.00)</b>	<b>30 (100.00)</b>	<b>60(100.00)</b>

**Source: Field Survey, 2023**

The majority of farm animals on the farms in the study were calves, which made up about 50% of the total; milk cows, which made up about 30%; heifers, which made up about 20%; and bullocks, which made up 20% of the total; these percentages are shown in Table 3 below.

### 3.3: Production potentials of Small Scale Dairy cows:

The analysis of the production potentials includes looking at factors that have an impact on production, such as the percentage of milking cows, the percentage of pregnant dry cows, the methods used to manage dry off, and the calving status of the cows that have been seen on the farms under investigation. According to the majority of farm owners ( (40.00%), pregnant cows make up between 25% and 35% of the dairy herds.

**Table-4: Production potentials of Small Scale Dairy Farm at different categories.**

Particulars of Variables	Number of Farms under different Farm Categories		
	Small Sizes Farm (< 5 Cows) N = 5	Medium Sizes Farm (5 to 10 Cows) N=5	ALL Farm (N=10)
<b>Proportion of farm cows in milk</b>			
Up to 70 %	3(60.00)	1(20.00)	4 (40.00)
> 70 % to 80 %	1(20.00)	3(60.00)	4 (40.00)
> 80 %	1(20.00)	1(20.00)	2 (20.00)
<b>Proportion of pregnant cows</b>			
Up to 25 %	2(40.00)	1(20.00)	3 (30.00)
25 % to 35 %	2(40.00)	2(40.00)	4 (40.00)
Above 35 %	1(20.00)	2(40.00)	3 (30.00)
<b>Proportion of Dry cows in pregnant</b>			
Up to 15 %	1(20.00)	1(20.00)	2 (20.00)
15 % to 25 %	2(40.00)	2(40.00)	4 (40.00)
Above 25 %	2(40.00)	2(40.00)	4 (40.00)
<b>Adopted dry off policy for pregnant</b>			
Milking continues up to next calving as available	2(40.00)	1 (20.00)	3(30.00)
Milking up to standard length of pregnancy (6-7) month	3(60.00)	4 (80.00)	7 (70.00)
<b>Calving status of milch cows</b>			
Up to 3 calving	3 (60.00)	2 (40.00)	5 (50.00)
4 to 5 caving	1 (20.00)	2 (40.00)	3 (30.00)
Above 5 calving	1 (20.00)	1 (20.00)	2 (20.00)

**Source: Field survey, 2023**

About 70% of farm owners implemented a dry off policy, with milking continuing for up to 6-7 months throughout pregnancy, and about 30% of farm owners reported using the strategy up until the next calving as soon as it was practical. About 56.15 percent of farm owners reported that their dairy cows give birth to calves three times or more (Table 4).

### **3.4: Estimating the costs returns and profitability of Small-Scale dairy enterprises**

This section evaluates the costs, returns, and farm profitability of small-scale commercial dairy farming operations on various types of farms. Feeds, labor, veterinary care, housing, capital investments, and operating capital were all considered cost variables for this study. Both cash outlays and non-monetary costs were included in the total costs per cow for each lactation. Dairy cow owners have to pay cash charges out of their own pockets in order to buy the inputs. On the other hand, non-cash expenses such as those for family labor, family-provided feeds, interests on the value of dairy cows, interest on the value of a home, interest on operating capital, and depreciation of housing costs were estimated. On the returns side, the study determined and examined gross returns, net returns above total costs, and net returns above cash expenses.

#### **3.4.1: Costs of Small scale Dairying at different categories of farms**

The annual costs per cow for small-scale dairy farming are shown in Table 5. The estimated total annual costs per cow for small and medium-sized farms were Tk.6480, Tk.7268. It was found that cash expenses accounted for Tk. 2435 and Tk. 3987 for the small and medium categories of dairy farms, respectively. For small and medium farms, the non-cash costs per lactation year per cow were Tk. 4045 and Tk. 3180, respectively. Following is an estimation and analysis of the item-wise annual costs of rearing one dairy cow:

##### **(i) Feed Cost of Rearing Dairy Cows:**

One of the major costs associated with rearing dairy cows was the price of the feed, which included paying money for paddy straw, green grasses, concentrates, salt, etc. The cost of the purchased feeds, which were valued in accordance with the supplied feeds, was really borne by the owners of dairy farms. According to table 5, the cost of the feed per cow per year for small and medium-sized farms, at Tk. 1472 and Tk. 1625. As a result, it was found that the total feed costs in small and medium-sized farms were very similar. The discrepancies in the cash outlays on feeds were also observed to be the same across all types of dairy farms. It was observed that small and medium-sized farms had yearly cash feed expenses per cow of Tk 24,463, Tk 26,630, and so on. These costs were shown to be greater for medium-sized dairy farms. However, it was

determined that the non-cash feed expenses each lactation per cow were Tk 4,045 and Tk 3,180, respectively (table 5).

**Table-5: Per cow annual costs of rearing Small Scale Dairy Enterprises under different Categories of dairy farms**

Particulars of items	Per cow annual Cost under categories of Farm(in BDT)								
	Small Sizes Farm (< 5 Cows) N=5			Medium Sizes Farm (5 to 10 Cows) N=5			ALL Farm N=10		% in Total Cost
	Non cash	cash	Total	Non cash	Cash	Total	Non cash	Cash	
Paddy Straw	250	415	665	210	520	731	482.33	823.33	7.68
Green Grass	320	520	840	220	618	838	573.33	840.00	9.06
Concentrates including salt	575	1200	1775	375	250	625	775.00	578.33	30.94
Labour	500	500	1000	465	1365	1200	1830	433.33	10.17
Veterinary care and Treatment	--	500	500	300	450	750	300.00	550.00	9.10
Cost of Housing	800	-	800	510	-	510	-	461.67	9.84
Artificial insemination charges	450	-	450	-	500	500	326.67	326.67	2.50
Interest on operating cost	350	-	350	-	284	284	249.67	249.67	7.10
Interest on Ave. value of dairy cows	750	-	750	750	-	750	-	800.00	10.61
Others (Rent, Tax etc.)	350	-	350	450	-	450	-	450.00	3.00
<b>All</b>	<b>4045</b>	<b>2435</b>	<b>6480</b>	<b>3180</b>	<b>3987</b>	<b>7268</b>	<b>3540.33</b>	<b>7265</b>	<b>100.00</b>

**Source: Field Survey,2023**

### (ii) Labour Cost of Rearing Dairy Cows

According to Table 5, the cost of the feed came after the cost of labor. The total labor costs each lactation year per cow were computed at Tk. 1000 and Tk. 1830 for small and medium-sized dairy farms, respectively. We calculated that these charges represented 10.17 and 14.10 percent of the total cost, respectively.

#### **(iv) Veterinary charges of Rearing Dairy Cows**

The costs of veterinary services were computed by factoring in the actual cost that the farm owners paid for a dairy cow during each lactation year. The two biggest parts of the overall veterinary costs were doctor's fees and medications. For small and medium sized farms the total veterinarian costs per lactation per cow came to Tk. 500, and Tk. 750.

#### **(v) Housing Cost of Rearing Dairy Cows**

By adding interest, maintenance costs, and depreciation charges to the typical value of housing shed, the cost of dwelling was calculated. Depreciation expenses were determined by dividing the home's original value by the sum of its expected lifespans (age of the home plus remaining life). The annual interest rate was calculated at 12.50 percent. Furthermore, it was found that interest on the value of the home was used to finance the majority of housing costs.

#### **(iv) Cost of capital of Rearing Dairy Cows**

The interest on the operational capital as well as the interest on the average value of dairy cows were considered as capital costs in the current study. Formula:  $\text{Interest} = (\text{begin value} + \text{end value}) \times \text{rate of interest} / 2$  was used to determine the interest on the average cow value. The projected average capital costs for small, medium, and big farms were Tk. 1500 and Tk. 2125. Additionally, a 15 percent annual interest rate was applied to the operating capital. Using the following formula, interest on operating capital was calculated:  $\text{Interest} = \text{operating costs} / \text{interest rate}$ . For small and medium farms, respectively, the anticipated annual operating capital expenses per cow were Tk. 550 and Tk. 849.

#### **(vi) Artificial Insemination charge of Rearing Dairy Cows:**

For the majority of commercial dairy farms, artificial insemination methods were employed to conceive their reared dairy cows using high-quality frozen sperm from an enhanced bull that was administered by DLS or BRAC A.I. technicians. Several people offered their services to help cows conceive naturally using their own bulls. For small and medium farms, the average cost per cow for artificial insemination was discovered to be Tk. 500. The overall costs per cow each lactation year were thus determined to be greater in the case of small and large dairy farms and

lower in the case of medium scale commercial dairy farms, according to the results of the above-mentioned estimates.

### 3.5: Estimating returns of Dairy Enterprises

This section compares the expected cash and total costs per cow per year to the gross and net returns of small-scale commercial dairying operations on various types of farms. Dairy cow profits came from the sale of milk and milk products, the cost of milk and milk products consumed, the average cost per calf produced, the value of using cow dung as fuel and manure for fodder land, and the sale of other materials bags, among other things.

**Table-6: Per cow annual returns of rearing Small Scale Dairy Enterprises under different Categories of dairy farms**

Particulars of items	Per cow annual Cost under categories of Farm(in BDT)			% in Total Return
	Small Sizes Farm (< 5 Cows) N=5	Medium Sizes Farm (5 to 10 Cows) N=5	ALL Farm N=10	
1. Direct selling of milk and milk products	7,491.25 (74.8)	8,596.00 (86.00)	9,632.08 (96.32)	78.32
2. Value of consumed milk and milk products	2,681.25 (26.81)	2,680.35 (26.80)	5,137.20 (51.37)	25.49
3. Ave. Value of calves of cows	5,000.00 (50.00)	9,000.00 (90.00)	15,000.00 (150.00)	13.11
4. Selling of dairy cow dung	1,575.00 (2.30)	1,100.00 (2.74)	3,091.67	2.70
5. Value of used cow dung as fuel and fodder land	950.00 (0.85)	950.00 (1.11)	1,113.33	0.97
6. Selling others materials (Bags, salvage materials etc.)	467.50 (0.42)	450.00 (0.40)	465.83	0.41
<b>A. Gross Return (in BDT)</b>	<b>70,000</b>	<b>85,000</b>	90,000	100.00
<b>B. Gross Margin per cow per Year (in BDT)</b>	<b>52,000</b>	<b>62,247.40</b>	68,698.80	60.03
<b>C. Net Return per cow per Year (in BDT)</b>	<b>20,000</b>	<b>34,287.40</b>	39,067.11	34.14
<b>D. Net Return per cow per Year (in USD)</b>	<b>1666.67</b>	<b>306.13</b>	348.8	-
<b>E. BCR (un-discounted)</b>	<b>1.50:1</b>	<b>1.34:1</b>	1.38:1	-

**Source: Field Survey, 2023**

Based on the typical lactation time, average daily milk production per cow, average price paid to farm owners per litre of milk directly, and average value of milk eaten, the average sale proceeds of milk were computed. It was believed that dairy cow calves were disposed away shortly after breastfeeding. Based on what the respondent anticipated, the worth of the calf was calculated. The

respondent's perception of this form of income as lump sum basis is used to compute the average values of cow manure and selling other materials per cow. According to Table 6, the gross return each lactation year per cow for small and medium-sized farms, respectively, was Tk. 70,000 and Tk. 85,000. For small and medium farms, the average returns from selling milk and milk products per cow each lactation year were determined to be Tk. 7,491.25 and Tk. 8,596.00, respectively. These returns accounted for 74.91 percent and 85.96 percent of the corresponding gross returns. For all types of farms, the average returns of generated calves were discovered to be Tk. 1500,000. For small and medium farms, respectively, the returns from selling cow dung and other materials such bags etc. were found to be Tk. 1575, Tk. 1100, and Tk. 467.5, Tk. 450, Tk. 480. Gross margin over cash was anticipated to be Tk. 52,000, Tk. 62,247, and net return each lactation year per cow (Table 6).

## CHAPTER-IV

### PROBLEMS, CONCLUSIONS AND RECOMMENDATIONS

#### 4.1: Identified major problems:

- High prices of feeds and fodder
- Low prices of milk
- Scarcity of quality feeds and fodders
- Conception failure
- Insufficient vet care and services
- Distance of AI point
- Lack of training and extension work
- No availability of good quality bull/semen
- Lack of credit facilities

#### 4.2: Summary and Conclusions

Bangladesh's economy is mostly based on agriculture and subsistence farming, and small-scale dairy farming is a vital source of employment for the country's young, intrepid entrepreneurs. Additionally, dairying considerably contributes to overall GDP with the production of meat, milk, and skin, which account for roughly 27, 23, and 28,000 percent of all animal production, respectively (FAO, 1997). Dairy farming can greatly increase household income without interfering with the impoverished and marginalized rural population's primary occupation.

According to this study, dairying offers more year-round employment prospects for farm family members and other illiterate workers than does the crops industry. It was determined that herd sizes with up to 5 milking cows were the most economically viable and lucrative because they were simple to manage using only their own free time and effort.

The study was conducted in five Betuar kul from Bheola Manikchar, Rampur from Saharbil, Kuchpara from Chiringa, Soaliapara from Kaiarbil, and Akbaria para from Purba Bara Bheola under Chakaria Upazilla. This study examined the socioeconomic profiles, production and management practices, and disease incidences of small-scale dairy farms among several farm classifications. The costs, returns, farm profitability, were also investigated in this study. For small, medium, and big farms, the gross margin over cash per cow per lactation year was estimated at Tk. 68,475, Tk. 62,248, Tk. 75,374, and the net return over total costs was estimated at Tk. 44,525, Tk. 34,287, Tk.

48,389, respectively. The Benefit Cost Ratio (BCR) for small, medium, and large commercial dairy farms, respectively, was 1.65:1, 1.44:1, and 1.69:1.

From this study, it can be concluded that: high prices of feeds and fodder, low prices of milk, scarcity of quality feeds and fodders, conception failure, variation in market demand of produced milk and inputs, occurrences of diseases far from the AI point, lack of training and extension work, unavailability of good bulls and semen, lack of credit facilities, feed poisoning. Young people and small-scale dairy farm operators would be interested in commercial dairying practices if those issues could be solved. As a result, small-scale dairying would present a chance to create work opportunities for the unemployed in peri-urban areas.

### **4.3: Policy Recommendations:**

In order to overcome the problems of small scale commercial dairying practices and making the such dairying practices more profitable, the dairy farm owners of the study area were asked to suggest how to overcome the identified problems. Following suggestions were put forward by the dairy farm owners for overall development of small scale dairying practices as a sustainable level by the different sizes of dairy farm according to herd sizes.

- Reduced prices of feeds and fodder
- Ensuring regular supply of quality feeds and fodders
- Make availability of quality semen and trained AI personnel
- Ensuring adequate veterinary services and health care facilities
- Providing regular training and Vet.extension services
- Make available credit facilities

### **4.4: Limitations of study**

There are many dairy farms in Chakaria Upazila, however only 10 dairy farms were used in the study. Because of the small sample size, the actual situation on the farms might not match the findings that were recorded. Although the study only included farms with fewer than 10 dairy cows, which mean it only, included marginal farmers, farms with more than 30 cows were not included. Additionally, the farmers weren't properly sharing all the data and there also had also time constraints as the study conducted during internship placement only in a single visit to the farms.

#### **4.6: Biography**

I am Halia Naznin Tusa, child of Nasir Uddin and Lutfun Nasa Nuri. I completed my Secondary School Certificate (SSC) from Chakaria Korak Bidyapith, Chakaria in 2014 and Higher Secondary School Certificate (HSC) from Govt.City College, Chittagong in 2016. I'm an intern student at Chattogram Veterinary and Animal Sciences University in the faculty of Veterinary Medicine right now. I am very motivated to learn new things and to expand my practical knowledge in order to be ready for the new era of science.

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