**AN ECONOMIC ANALYSIS OF HOUSEHOLD LOCAL DAIRY REARING AT SOME SELETED AREAS IN CHATTOGRAM DISTRICT**



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**Khulshi, Chittagong-4202.**

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| **………………….........................................**  **Author**  **Name: Mahmud Bin Abedin**  **Roll No: 16/27**  **Reg. No: 01640**  **Session: 2015-16**  **Intern ID: 24**  **Date of Submission:08-11-2021** | **…………………................................................**  **Supervisor**  **Professor Md. A. Halim**  **Department of Agricultural**  **Economics and Social Science**  **Chittagong Veterinary and Animal**  **Sciences University** |

***A production Report submitted as per approved style and content***

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***The Author***

**ABSTRACT**

The study was designed to investigate the socioeconomic characteristics of cattle rearers and to assess the relative profitability of household cattle rearing. The focus of the present study was to quantify the cost, returns and to explore the interrelationship of factors affecting yield. The study was conducted in Chittagong district. In total, 50 farmers were randomly selected to determine the costs, returns and profitability of dairy cattle. Primary data were collected from the selected farmers by interview method. Tabular and functional analyses were done to achieve the objectives. The study revealed that the selected farmers were relatively in age group of 30.01-40.01 years mostly with primary educated and occupied in agriculture. The rice bran as feed, labour and veterinary expenses significantly contributed in cattle rearing and the increasing returns to scale were observed. The per day total cost of raising local breed dairy cow was estimated at Tk 78. Feed cost was the largest single cost item of raising dairy cows. Feed cost constituted about 60.12 percent of total costs for dairy cows. The average milk yield per day per cow was 2.25 litres. The total returns per day were estimated at Tk 150.77 for a dairy cow. The value of milk production represented 82.08 percent of total returns. The respective net returns per day were estimated at Tk 72.77. Per day Undiscounted BCR for local breed dairy cattle in the study area was 1.93 and annual per lactation BCR per cows estimated as 1.19. The study also identified some problems and major constraints as reported by farmers which were: scarcity avenues of feed and fodder, inadequate veterinary services, lack of extension services, lack of pure improved breed and artificial insemination, distant of artificial insemination center, lack of suitable marketing facilities, complex terms and condition for institutional credit. Finally, based on the findings of the study, some policy recommendations were made for the development of household cattle rearing in Bangladesh.

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**Key words: Dairy Farming practices, Farm profitability and Farming problems and recommendations.**

**CHAPTER-I**

**INTRODUCTION**

**1.1 Introduction**

Bangladesh is a densely populated developing country and its economy mostly depends on agriculture. Agriculture contributes about 18.70 percent in Gross Domestic Product (GDP) (Economic Review 2018). About 47.33% of total human power of Bangladesh relates in agriculture (Economic Review 2018). Livestock is the prominent sector of agriculture and the contribution of this sector in GDP is 3.49% (Economic Review 2018). In Bangladesh cattle are reared by the rural households’ not on truly commercial basis but as a component of the mixed farming.

Cattle are the large domesticated bovids having a compound stomach, divided hoof which are raised for meat, milk, hides or for draft purpose.e.g( cows, bulls or steer that are kept on a farm or ranch for meat or milk). Depending on the breed their weight varies. About 277 breeds are identified. Among these the beef and dairy breeds are more prominent. Beef cattle include-Angus, Hereford, Shorthorn and dairy cattle include- Jersey, holstein Frisian, Sindhi, Shahiwal, Red Chittagong etc. Cattle feed primarily by grazing on pasture but in modern farming their diet is ordinarily supplemented with prepared animal feeds.

Surprisingly, Bangladesh has one of the highest cattle densities: 145 large ruminants/km2 compared with 90 for India, 30 for Ethiopia, and 20 for Brazil. But most of them trace their origin to a poor genetic base. The average weight of local cattle ranges from 125 to 150 kg for cows and from 200 to 250 kg for bulls that falls 25-35% short of the average weight of all-purpose cattle in India. Milk yields are extremely low: 200-250 litre during a 10-month lactation period in contrast to 800 litre for Pakistan, 500 litre for India, and 700 litre for all Asia. Despite highest cattle densities in Bangladesh, the current production of milk, meat and eggs are inadequate to meet the current requirement and the deficits are 85.9, 77.4 and 73.1% respectively.Table1.1 shows number of cattle from 2013 to 2018 and Table 1.2 shows production of milk and meat from 2013 to 2018.

If 5% GDP growth rate is considered then the current production of these commodities need to be increase 2.5 to 3.0 times by the year 2020 to feed the growing population in the country. This illustrates how urgent is the need to increase the production of milk and meat.

The present livestock population were recorded as Livestock population in Bangladesh is currently estimated to comprise **25.7 million cattle**, 0.83 million buffaloes, 14.8 million goats, 1.9 million sheep, 118.7 million chicken and 34.1 million ducks. The density of livestock population per acre of cultivable land is 7.37.

**1.2: Importance of Household Cattle Rearing to the Economy of Bangladesh**

Despite steady progress towards industrialization, agriculture remains the most Important sector in Bangladesh. About 18.70% of Gross Domestic Product (GDP) of the country comes from agriculture sector. Besides, it has indirect contribution to the overall growth of GDP. Many sectors included in broad service sector such as wholesale and retail trade, hotel and restaurants, transport and communication are strongly supported by the agriculture sector. This sector also provides employment for around 47.50% of the total labour force and seems to have managed to feed around 15.36 million people of the country. The development of agriculture sector is very much urgent for poverty reduction, food security and sustainable development of our country. The PRSP (Poverty Reduction Strategy Paper) stresses the importance of the livestock sub- sector in sustaining the acceleration of poverty reduction in the country. The dynamic potential of this emerging sub-sector thus requires critical policy attention. In the past, due importance was not given to the development of the livestock sub-sector despite its significant contribution to the national economy. In the Financial Year 2016-17 the livestock sub-sector received only about 1.0 percent of the total budget allocation, or only about 3.5 percent of the agricultural sector budget. Though production of animal protein has maintained an upward trend, per capita availability of animal protein presently stands at around 21 gm meat/day, 43 ml milk/day and 41 eggs/year vis-a-vis the recommended intakes of 120 gm meat/day, 250 ml milk/day and 104 eggs/year. Shortage of quality inputs, inadequate services and physical infrastructure, institutional weaknesses in terms of weak regulatory framework and enforcement, limited skilled manpower and resources, and inadequate research and technological advancement are all continuing to act as constraints to livestock development. The opportunity for development of large-scale dairy is limited in Bangladesh due to scarcity of land. However, the potential for development of household cattle rearing is high. Over the last few years, small- scale dairy farming has increased significantly with the support of credit, feed, veterinary services and provision of self-insurance systems.

Household cattle’s rearing provides employment for the poorer segments of the population. The availability of this form of traditional self-employment to rural dwellers, particularly women, is important where there is scarcity of alternative income generating opportunities. Household cattle rearing thus widen the scope for the poor with limited access to land to enhance their income. Dairy animals can play a crucial role in household food security, through improved income and nutrition of the low-income groups. Around 3.5 million cattle are slaughtered annually in the country of which 40 percent are imported through cross-border trade. Around 15 million goats are slaughtered annually mostly of local origin. Of the total slaughter of cattle and goats, around 40 percent is performed during Eid-ul-Azha. Increased demand for quality meat, beef production has become an important income generating activity for small farmers, and a potentially important tool for reducing poverty. Beef production is considered to have high income generating potential, but faces constraints such as lack of appropriate breeds, knowledge gaps of farmers, lack of proper veterinary services and quality feeds. Besides, the cattle dung as fuel is equivalent to about 20.0 percent of all energy supplied through the traditional systems and it adds another 10.0 percent of the total soil nutrition supply for agriculture (DLS, 1998). Haque (1991) estimated that animal dung supplied soil nutrition and 6.7 million tonnes of dried dung are use as fuel that is equivalent to 250 thousand tonnes of chemical fertilizer and which is Tk. 45 to 65 million in terms of firewood.

**1.3 Shares of Livestock in GDP**

The dairy cows play a significant role in maintaining a strong agricultural economy of Bangladesh. It can play a leading role to reduce malnutrition of the country’s people, mostly the children. Livestock sector also play a crucial role in GDP. Table 1.3 shows the contribution of agricultural and its sub-sector to GDP.

Livestock sub sector generates a significant amount of foreign exchange through the export of hides and skins, leather products, bones, horns, hooves, meat, edible offal and live animals among different export items of livestock origin. Cattle and goats are the major skin and hide producing species followed by buffalo and sheep. Leather and leather products have the most important position in the total export earnings of the country. Hides and skins are mainly used as raw materials in different industries. The domestic supplies and the imported and smuggled hides and skins are the main sources of raw materials of leather and leather products.

**1.4 Justification of the Study**

Bangladesh is an agricultural country in which livestock playing a crucial role in the traditional subsistence economy of the country. Although this sectors nominal share of Gross Domestic Products (GDP) is estimated at 3.49% , the indirect contributions through draught, fuel and fertilizer are even larger. Though Bangladesh has one of the highest cattle densities, the cattle are poor in health, small in size and consequently less productive in terms of output. Everywhere in the world cattle rearing is a year round profitable business. A farmer by rearing five high yielding milk cattle could earn more than what he could earn by cultivating 5 acres of land. (Mannan, et al. 1992). Improved livestock rearing through appropriate planning and effective management is expected to solve the problem of unemployment and improve the living condition of the majority of our rural people.

The present study will generate baseline information on socio-demographic profiles of cattle reares, general features of cattle rearing, level of input use and its pricing, costs and returns, and the socioeconomic factors affecting the productivity of household cattle rearing in Bangladesh. In this regard, a few hard data are available for making any meaningful plan and suggestion, and taking appropriate measures for the overall development of cattle rearing. No comprehensive economic study of this type was conducted previously in this area. A study on household cattle rearing is therefore, urgently needed to acquire the relevant information on the profitability of household cattle rearing practices of Bangladesh which may help device effective national planning for the development of this sector.

**1.5 Objectives of the Study:**

The main objectives of this research are to assess the economics of household cattle rearing and to assess the impact of cattle rearing on income of the rural poor. The specific objectives of the study are:

1. To identify the major socio-economic characteristics of cattle rearers;
2. To estimate cost, return and profitability of cattle rearing;
3. To determine the contribution of factors affecting cattle rearing; and
4. To identify problems of rearing dairy cows and suggest some policy

guidelines/recommendation.

**CHAPTER- 2**

**REVIEW OF LITERATURE**

The main purpose of this chapter is to review available studies related to the present research. Some important studies in different aspects directly or indirectly related to the present study such as socioeconomic characteristics, information about cattle, housing system, feeds and feeding system, milk production, problems of household cattle rearing etc. However, some of the related findings of research carried out in this country or elsewhere are reviewed in this section.

The study conducted by Halim (1992) observed that 45 per cent of the dairy cow owners were small farms, 50 percent of dairy owners were owner operator farms and 55 per cent of them earned annual income ranging from Taka 25,000 to 50,000. The study showed that the average lengths of lactation period for local and cross-breed dairy cows were 228 and 254 days, respectively and milk yield per day was 1.30 and 3.09 litres. The total costs per lactation period were Tk 5,105 and Tk 7,593 for local and cross-breed cows respectively according, the net returns over cash costs and total cost were found to be Tk 4,159 and Tk 652 for cross-breed cow. The study identified some problems raising dairy cow in the rural areas of Bangladesh such as scarcity of feeds and fodder, lack of veterinary care and services, lack of grazing land low price of milk etc.

Akteruzzuman (1993) conducted a study on the economic impact of cattle distribution programme of BRAC for the alleviation of rural poverty in some selected areas of Bangladesh. The study revealed that the ownership pattern of land changed due to the programme. The own land increased by 5 per cent and side by side the cultivated land of the tenant farmers increases 16 per cent after the implementation of the programme. It was found that the number of cattle and value of the animal increased by 670 and 700 per cent respectively after programme. The average family income increased from Taka 27,994 to Taka 46,669 after the implementation of the programme. Over all the cattle distribution programme had a positive impact on the alleviation of poverty in the rural areas.

Alam J, (1995) conducted a study of the economics of mini dairy farms using data collected from a total of 20 randomly selected farms, 10 each from Savar and Manikganj thanas of Dhaka district, Bangladesh. The average number of milk cows per farm was 2.55 cross-breed and 0.65 local breed cows. Milk production per cow was higher for cross-breed (5.66 litres) than that of local breeds (2.23 litres). The highest milk yield per cow was amounted to litres for the large farm group (11-20 cattle per farm).

Talukder and Tajuddin (2000) conducted a study on economics of milk production in Bangladesh. It was revealed that on average milk production in Bangladesh per cow per year were about 620 litres and 1581 litres in local and cross-breed farms respectively in Manikganj district and Sirajgonj district average milk production per cow per year were about 555 litres and 1675 litres in local and cross-breed farms respectively. Total feed cost per year for local and cross-breed farms were estimated at Tk 37266.40 and Tk 71815.85 respectively in Manikganj district and in Sirajgong district per year feed cost for local and cross-breed farms were Tk 30936.00 and Tk 96052.00 respectively. The study also showed that net returns per farm were Tk 16489.00 and Tk 32533.00 annually for local and cross-breed dairy farm respectively in Manikganj district. The corresponding figures in Sirajganj were Tk 10905.00 and Tk 39293.00.

Sarker (2003) conducted a comparative economic analysis of local and cross breed dairy cow rearing farmers. It also analyzed the relative profitability of the two types of dairy cows. The study revealed that per day total cost of rearing per local breed and cross breed dairy cows were Tk 37.41 and Tk 70.52 respectively. He also pointed out some problems related to dairy rearing and offered a set of recommendation for improving dairy production.

Islam (2005) conducted an analysis on socioeconomic impact of improved supplementary feeding or rearing dairy cattle and found that dairy farming is profitable under the management of small-holders'. Feed cost is the largest single cost item of Shahinur (2009) conducted an economic analysis on dairy cow rearing and found that dairy farming is profitable enterprise. Feed cost is the largest single cost item of raising dairy cow. In local breed and cross breed, feed constitute 60.01 and 67.57 percent, respectively. In local breed and cross breed net returns per day per cow were Tk. 16.43 and 82.01, respectively. Benefit cost ratio of local breed and cross breed were 1.38 and 1.90, respectively. Cobb- Douglas production function was used to estimate contribution of the very variables in this study. Dairy cattle and it constitutes about 57.48 percent of the total costs. The respective net returns and BCR per day per cow were Tk 66.12 and TK 1.83 respectively .Cobb-Douglas production function was used to estimated contribution of the key variables in this study.

Quddus (2006) performed a study to know the profitability of dairy farming, milk consumption pattern and marketing system of dairy owners. It was found from this study that net return of dairy milk in commercial region was significantly higher than that of other regions due to rearing of cross breed cows and feeding them high quality feed. Net return from dairy enterprise was 69 percent of the gross cost and this figure was the highest in the semi-urban regions (75%). The positive values of marginal value product indicate that addition of dry fodder, capital investment and labour would add positive returns through milk production. Average per capita daily milk consumption by the dairy owners of different income classes and different regions were significantly different.

Shahinur (2009) conducted an economic analysis on dairy cow rearing and found that dairy farming is profitable enterprise. Feed cost is the largest single cost item of raising dairy cow. In local breed and cross breed, feed constitute 60.01 and 67.57 percent, respectively. In local breed and cross breed net returns per day per cow were Tk. 16.43 and 82.01, respectively. Benefit cost ratio of local breed and cross breed were 1.38 and 1.90, respectively. Cobb-Douglas production function was used to estimate contribution of the very variables in this study.

Farhana (2011) conducted an economic analysis on small-holders’ dairy farming and found that the per day total cost of raising per dairy cow were estimated at Tk 71. Feed cost was the largest single cost item of raising dairy cows. The feed cost constituted about 57.74 percent of the total cost for dairy cows. In the case of dairy cows about 14.08, 25.35, 6.96, 10.14 and 1.24 percent of the total costs were represented by paddy straw, green gross, oilcake, bran, and salt. Labour cost was a very important cost item. The labour cost per day amounted to Tk19.5 which represented 27.46 percent of total cost of a dairy cows. The contribution of housing cost, veterinary cost and capital cost were about 1.83,0.82 and 10.40 percent of the total cost for a dairy cows. The total returns per day were estimated at Tk 139 for a dairy cow. The value of milk production represented 82.04 percent of total returns for a dairy cows. The respectively net returns were Tk 68 for a dairy cow. From the above discussion and review it is evident that most of the studies conducted so far were concentrated on the productivity aspect of dairy cow. A very few number of studies were concerned with the economic aspects of rearing household cattle. Thus the present study has been designed to add new insight into household cattle rearing and explore the recent economic information on the topic in that region.

**CHAPTER-III**

**METHODOLOGY OF THE STUDY**

**3.1 Introduction**

A farm management research needs reliable data from individual farmers to fulfill the objectives and the researcher has to follow a systematic course of actions, which is termed as methodology. There are various methods of collecting data for farm management research. Selection of a particular method depends on many considerations such as, the nature of the research problem , provision of research funds, etc. The survey method was used in the present study because it was thought to have some advantage over other methods. The following steps were followed in conducting the present study.

**3.2 Selection of Study Area**

According to Yang (1965) "The area in which a farm business survey is to be carried out depends on the particular purpose of the survey and the possible co- operation from the farmers".

Chittagong district was selected purposively as the study area.

The reasons for selecting these areas for the present study are given below:

i. Availability of household cattle;

ii. The area was well communicated which helped involvement and data collection easier for the researcher;

iii. It was expected that co-operation from the farmers in this area would be high so that reliable data could be obtained.

**3.3 Sampling technique**

It was not possible to make a survey covering all the farms. It is sometimes not wise to include too many farms in a survey because it needs additional time, effort and expenditure to complete the survey, According to Yang (1965) a sample of representative farms should be chosen in guch a way that the information from it can meet the purpose of the survey. From each of the purposively selected areas a list of farmers who raised at least one cattle during the study period was prepared. Selction of the respondents was made randomly from the list. A fifty sample farmers were selected for the study.

**3.4 Period of Data Collection**

Data were collected by the researcher herself during the month of July to August 2014. In order to obtain reliable data, two visits were made by the researchers. The first visit was paid in the month of July and the last visit was done in the month of August. During the period of data collection, the researcher stayed at the village, so that the cattle owners could give information at the time of their own conveniences.

**3.5 Preparation of the Survey Schedule**

Preparation of survey schedule is of crucial importance in any survey. The first step in this direction was the development of a good questionnaire with questions suitably arranged and worded. Questionnaire or survey schedule was to be designed that the objectives of the study research are met. A survey schedule was prepared to record the desired information from the cattle owners. Before preparing the final schedule a draft schedule was developed. The draft schedule then pretested in the study area and then it was rearranged and modified. The schedule was developed in a simple manner to avoid misunderstanding and to get accurate answer in the questionnaire; items and questions were listed and grouped in logical sequence to facilitate the farmers’ recollections of the required facts. The schedule contained the following key items of information:

i. Socioeconomic characteristics of the cattle rearers;

ii. Information on cattle;

iii. Income from the crops, domestic animals and other assets;

iv. Productivity of cattle and items of cost and returns; and

v. Problems identification relating to cattle rearing and their probable solutions.

**3.6 Methods of Data Collection**

Data were collected from the selected farmers by face to face interview, with `a set of interview schedules designed for this study. Before actual interview, a brief introduction regarding the nature and purpose of the study was made to sample farmers. When they were convinced about the purpose of the study that was simply an academic exercise, they tried to co-operate with the researches. Question was asked systematically and explanation was made whenever it was necessary. The information supplied by the respondents was recorded directly on the interview schedules.

**3.7 Processing of Data**

After collection of data, they were classified, edited and coded for analysis. These data were verified to eliminate possible errors and inconsistencies. All the collected data were summarized and scrutinized carefully. It might be observed here that data were collected initially in local units and after checking the collected data, they were converted into standard international units. Finally relevant tables were prepared in accordance with the set objectives of the study.

**3.8 Analytical Technique**

The tabular and normal statistical analytical tools are used for analysis of data. Tabular technique is the technique that is commonly followed to find out the crude association between variables. In this study tabular technique was followed to illustrate the whole picture of analysis The sum, mean, gross return etc., were the simple statistical measures to show milk production of dairy cows.

CHAPTER-IV

**RESULTS AND DISCUSSION**

This chapter deals with the socioeconomic characteristics of the sample farmers. Decision making, enterprise combination, consumption pattern and employment status of different farm households would be influenced by their various characteristics. For this reason, to examine the socioeconomic characteristics of selected dairy farmers, various information relating to age, family size, level of education and occupation; have been taken into account in this study.

**4.1. Age of the Cattle Rearers**

The age groups of the farm family members were classified into five categories in this study. These were: (i) 20.01-30.00 years; (ii) 30.01-40.00 years; (iii) 40.01-50.00 years; (iv) 50.01-60.00 years; and (v) Above 60.00 years.

Table 4.1 indicates that the highest number of cattle rearers 40.00 percent belonged to the age group of 30.01-40.00 years. About 14.0 percent of the cattle rearers were in the age group of 20.00-30.00 years; 28.0 percent were in 40.01-50.00 years; 14 percent were in 50.01-60.00 years and 4 percent belonged to above 60.00 years age (Table 4.1).

Table- 4.1 Age Distribution of the Sample Farmers

|  |  |  |
| --- | --- | --- |
| Age group  (years) | Dairy farm owners | |
| No. | Percent of total |
| 20.01-30.00 | 7 | 14.00 |
| 30.01-40.00 | 20 | 40.00 |
| 40.01-50.00 | 14 | 28.00 |
| 50.01-60.00 | 7 | 14.00 |
| Above 60.00 | 2 | 4.00 |
| Total | 50 | 100 |

**4.2 Literacy Level of the Cattle Rearers**

Literacy has an important impact on decision making processes of agricultural production. It helps a person to make right decision regarding his farm business and to obtain new information of various production processes. It makes a man more capable to manage scare resources and hence to earn maximum profit.It is evident from Table 5.2 that 12.0 percent of the selected dairy farmers were illiterate. This implies that the majority of the cattle rears were literate. Educational status of selected cattle rearers are also shown in Table 5.2 respectively.

**Table 4.2 Literacy levels of the Sample Farmers**

|  |  |  |
| --- | --- | --- |
| Literacy level | Sample Farmers | |
| No. | Percent |
| Illiterate | 6 | 12.00 |
| Primary | 23 | 46.00 |
| Secondary | 8 | 16.00 |
| Higher secondary | 11 | 22.00 |
| Above | 2 | 4.00 |
| Total | 50 | 100 |

**4.3. Occupational Status of the Cattle Rearers**

The work in which a man engaged throughout the year is known as his main occupation of that person. In the study area agriculture was the main occupation of 30.00 percent of total farm owners in Table 5.3. Along with crop production the selected farmers were engaged in cattle farming. In contrast business, wage and service was the main occupation of 16.0, 20.00 and 20.00 percent of the sample farmers respectively, which is shown in Table 5.3.

**4.4. Land Distribution of Sample Farmers**

In this study, the land holding of the sample farmers was defined as the sum total of all types of land possessed by the farmers and having legal right on it. Land distribution of sample farmers is presented in Table 5.4. It is evident from the results presented in Table 5.4 that the average land holdings of the sample farm were 1.67 acre of which crops accounted for 1.53 acre ;0.01 acre occupied by ponds; 0.06 acre by homestead; and 0.07 acre by garden. It implies that most of the sample farmers were small farmers.

**Table 4.4: Land Ownership Patterns of the Sample Farmers**

|  |  |  |
| --- | --- | --- |
| Land type | Average size of land  (acre) | Percent of total |
| Homestead area | 0.06 | 3.59% |
| Cropland | 1.53 | 91.61% |
| Garden | 0.07 | 4.19% |
| Area under pond | 0.01 | 0.3% |
| Total | 1.67 | 100% |

Source: Field survey, 2021

**4.5. Cost of Cattle Rearing**

Table 6.1 shows the total costs per cow. The total cost per cow per day was estimated at Tk 78. The major costs were estimated item wise which are discussed below:

**4.6. Feed cost**

Feed cost was one of the major cost items of cattle rearing. An attempt was made to estimate feed cost for the cattle in the research. Cost of feed included expenses on paddy straw, green grass, oilcake, bran (rice, wheat and pulse) and salt etc.

Feed costs shared 60.12 percent of the total cost for cattle rearing. The total feed cost per day per cow was estimated at Tk 46.90 (Table 6.1). Among various feed items paddy straw green grass, oilcake and rice bran were the most important. For cattle the shares were 19.23, 20.51, 0.64, 18.71, and 1.03 percent for paddy straw, green grass, oilcake, rice bran and salt (Table 4.5).

**Table 4.5 Total Cost and Return of Raising a Local Breed Dairy Cow per Day**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Particular | Unit | Quantity | Price/unit  Tk | Total  Tk/cow/day | Percentage of total |
| **Costs:** | | | | | |
| Feed cost |  | | | 46.90 | 60.12 |
| Paddy straw | Kg | 1.50 | 10 | 15 | 19.23 |
| Green grass | Kg | 2.00 | 8 | 16 | 20.51 |
| Oil cake | Kg | 0.014 | 35 | 0.50 | 0.64 |
| Rice bran | Kg | 0.73 | 20 | 14.6 | 18.71 |
| Salt | Kg | 0.08 | 10 | 0.80 | 1.03 |
| Labour cost | man/day | 0.10 | 200 | 20 | 25.64 |
| Housing cost | - | - | - | 1.45 | 1.85 |
| Veterinary cost | - | - | - | 0.86 | 1.10 |
| Capital cost | - | - | - | 7.39 | 10.40 |
| Miscellaneous  Cost | - | - | - | 1.40 | 1.79 |
| Total cost | | | | 78.00 | 100 |
| **Returns:** | | | | | |
| Milk | Liter | 2.25 | 55 | 123.75 | 82.08 |
| Cow dung | Kg | 1.5 | 5 | 7.5 | 4.97 |
| Inventory  Change | Tk. | - | - | 19.52 | 14.04 |
| Total return | Tk. | - | - | 150.77 | 100 |
| Net return | Tk. | - | - | 72.77 | - |
| BCR **(un-discounted)** | - | - | - | 1.93 | - |

**Source: Field survey, 2021**

**Table 6.2: Annual (per- lactation) Cost and Return of Raising a Local Breed Dairy Cow**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Particular | Unit | Quantity | Price/unit  Tk | Total cost  (Tk/year) |
| **Costs:**  Feed cost | | | | 13750 |
| Paddy straw | Kg | 480 | 10 | 4800 |
| Green grass | Kg | 600 | 8 | 4800 |
| Oil cake | Kg | 6 | 35 | 210 |
| Rice Bran | Kg | 182 | 20 | 3640 |
| Salt | Kg | 30 | 10 | 300 |
| Labour cost | man/day | 35 | 200 | 7000 |
| Housing cost | - | - | - | 530 |
| Veterinary cost | - | - | - | 313 |
| Capital cost | - |  | - | 2700 |
| Miscellaneous  Cost | - |  | - | 500 |
| Total cost |  |  |  | 24793 |
| **Returns:** | | | | |
| Milk | Litre | 821 | 55.00 | 45155 |
| Cow dung | Kg | 400 | 5.00 | 2000 |
| Inventory Change | Tk. | - | - | 7125 |
| Total return | Tk | - | - | 54280 |
| Net return | Tk. | - | - | 29487 |
| BCR (Un-discounted) | - | - | - | **1.19** |

**Source: Field survey, 2021**

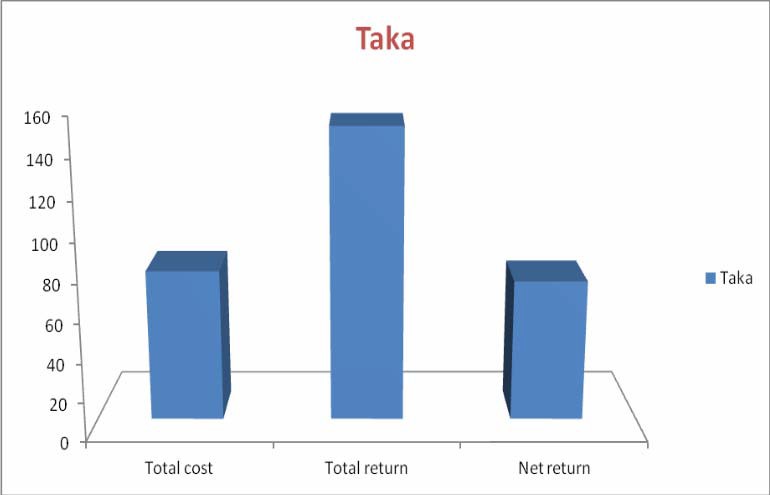


Figure 6.1 Per day Total Cost, Total Return and Net Return of a dairy cow.

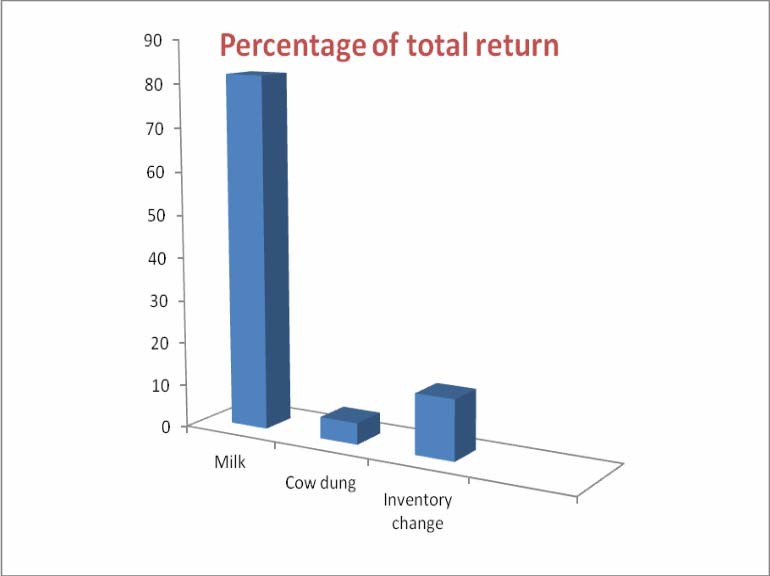


Figure 6.2: Bar Diagram Showing Individual Return as Percentage of Total Return.

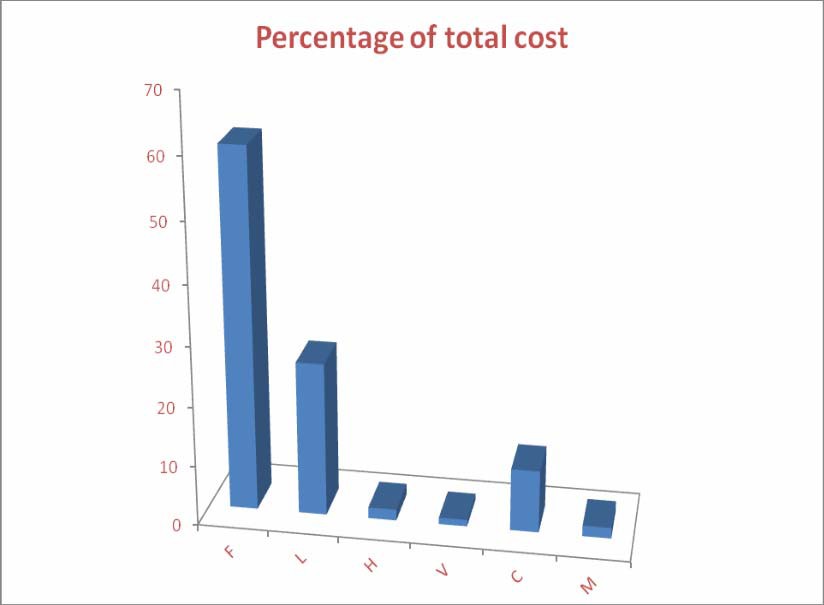


Figure 6.3 Bar- Diagram Showing Individual Cost as Percentage of Total Cost

**4.6. Labour cost**

Labour cost is an important cost in dairy raising and it has implication on income and employment generation. In order of importance, the labour cost came next to feed cost. It appeared from that total labour costs per day were estimated at Tk 20 for a cow and their respective share of total cost was 25.64 percent (Table 4.6).

**4.7. Housing cost**

In the study area, there were straw made and tin shade houses for dairy cows. The cost of housing was calculated by taking into account the deprecation cost, repairing cost and interest on the average value of housing shed and on repairs, respectively. Depreciation was measured by dividing the original value of the house during the time of construction by its total life in years. Interest rate was assumed to be 12 percent per annum. The housing cost comprised about 1.85 percent of total cost amounting to Tk 1.45 per cow per day (Table 4.5).

**4.8. Veterinary cost**

Veterinary cost was calculated by taking into account the actual cost incurred by the farmers doctors fees and medicine were two major components of the total veterinary cost. The total veterinary cost per day per dairy cow amounted to Tk 0.86 and comprising 1.10 percent of total cost (Table 4.5).

**4.9. Capital cost**

Capital cost was measured in the present study as the interest on the average value of cattle. It was assumed that the cattle owners had purchased the cow just before calving and sold it after one year. The cost of capital was calculated by the following formula:

Beginning value + Ending value

Capital cost = x interest rate

2

The average capital cost of a cow per day was Tk 7.39 (Table 6.1) and constituted

10.40 percent of total cost (Table 4.5).

**4.10. Miscellaneous cost**

Miscellaneous cost included costs of some minor items like ropes, milking equipment, milk marketing, mosquito coil, chain, etc. Miscellaneous cost per day per cow was Tk 1.4 and shared 1.79 percent of total cost (Table 4.5).

**4.11. Returns from Dairy Cows**

The purpose of this section was to determine total returns and net returns from cattle rearing over total costs. The returns from cattle included returns from milk sale or consumed, cow-dung, and calf. The returns from milk were calculated on the basis of the average quantities of milk yield per cow and average price received per litre of milk.

Returns from cow-dung were found out by taking average price at which cow-dung was sold in the study areas. The average price of cow-dung sold in the study areas was Tk 5 per kg. The return from milk per day was Tk 123.75 for a dairy cow which was 82.08 percent of total return (Table 6.1). The average return from the cow-dung per cow per day was Tk 7.5 and 4.97 percent of total return (Table 6.1).

**4.12. Net Returns from Dairy Cow:**

The total returns per day stood at Tk 150.77 for a dairy cow.Net returns were calculated by deducting the total costs from the total returns. The net returns per day were estimated at Tk 72.77 for a diary cow.

**4.13. Benefit Cost Ratio (BCR)**

The BCR (undiscounted) is a relative measure which is used to compare benefits per unit of cost. The BCR of a dairy cow was calculated as a ratio of total returns and total cost. Table 6.1 shows that benefit cost ratio of a dairy cow was emerged as 1.93 implying that Tk 1.93 would be earned by spending Tk 1.00 investing in household cattle rearing which revealed that benefit cost ratio (1.93) of a dairy cow indicating that household cattle rearing would be profitable.

**CHAPTER-V**

**Summery, Conclusion and Recommendations**

5.1: **Summery and Conclusion**:

In the subsistence economy of Bangladesh, cattle as a part of livestock play a crucial role in the households. A majority of the rural people are directly engaged in livestock rearing. Cattle’s rearing in Bangladesh has been practiced for a long time at household level. Cattle has been used here the double purpose animal draught power and milk yielder. However, with the change of technology, farmers have been seen to reduce the use of cattle as draught power and increase the use of power tiller for land preparation etc. capital intensive farms have also come up.

Agriculture contributes about 18.70 percent in GDP (Economic Review 2014). About 47.33% of total human power of Bangladesh relates in agriculture (Economic Review 2014).Livestock is the prominent sector of agriculture and the contribution of this sector in GDP is 3.49% (Economic Review 2014).

The per day total cost of rearing local cattle were estimated at Tk 78. Feed cost was the largest single cost item of raising dairy cows. The feed cost constituted about 60.12 percent of the total cost for cattle. In the case of cattle about 19.23, 20.51, 0.64, 18.71 and 1.03 percent of the total costs were represented by paddy straw, green gross, oilcake, bran, and salt. Labour cost was a very important cost item. The labour cost per day amounted to Tk 20 which represented 25.64 percent of total cost of cattle. The contribution of housing cost, veterinary cost and capital cost were about 1.85, 1.10 and 10.40 percent of the total cost for a cattle.

The total returns per day were estimated at Tk 150.77 for cattle. The value of milk production represented 82.08 percent of total returns for cattle. The respectively net returns were Tk 72.77 for cattle.

Effect of milk yield of some contributing factors like paddy straw, green grass, bran, labour cost and veterinary cost etc. were analyzed. Tabular analysis showed that the major factors of yield variation in local-breed dairy cows were paddy straw, other things remaining the same. The average milk yield per day was 2.25 liters for dairy cows.

5.2: **Problems in Rearing Dairy Cows:**

Risks and uncertainty are quite common facts in dairy farming business. Apart from these, dairy farming practices have been facing a number of remarkable problems. The selected farm owners in the study areas have experienced in dairying since significant years and were confronting many serious production and marketing oriented problems. An attempt have been made in this chapter to identify the major constraints and problems faced by the farmers in dairying practices and to discuss the possible solutions of these problems so that the farmers can obtain better economic return from goat farming business. In order to identify various problems of rearing cows and the identified problems were found 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, and Lack of credit facilities.

**5.3:** **Recommendations against problems:**

The following recommendations are made for sound development of household cattle rearing in the study area. Community-based veterinary service would be developed through special projects; Mobile veterinary services will be provided by DLS; Plants of processing Urea Molasses Block (UMB), specially in sugar mill area of the country should be established, proper marketing facilities should be ensured; The DLS and the non-government organizations should strengths their programme to train the dairy farmers on dairy management, animal health care, sanitation and marketing techniques on priority basis; In order to encourage rural people for household cattle rearing. Government should facilitate livestock loan at easy terms and conditions.

**5.4: Limitations of the Study:**

There was a limitation of time. To get a satisfactory and reliable data sufficient time was needed. But data were collected and analyzed by the researcher within very short time because of Covid-19 problems. In the study areas, for collecting necessary data, the researcher had depended on the memory of the respondents because they did not keep written records. The study covered only 50 samples. This sample size was not sufficient for the study. If the study could cover more areas and more samples the results and conclusions of the study might be more meaningful and more useful. The findings of the study are based on the data from a specific area (Chittagong District) of Bangladesh. These findings should therefore be interpreted cautiously, if any greater generalizations are sought for different regions with distinct geophysical conditions of Bangladesh. The present study is dependent mainly on one year data and the results presented may vary from year to year.

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# BRIEF BIOGRAPHY

Myself **Mahmud Bin Abedin** toobtain Doctor of Veterinary Medicine (DVM) Degree in 2021 from faculty of veterinary medicine under Chattogram (previously Chittagong) Veterinary and Animal Sciences University to submit a production report for partial fulfillment for the Degree of Doctor of Veterinary Medicine (DVM).