# Study of Farm Production through Agricultural Loan at Shikalbaha Union of Karnafuli Upazilla, Chattogram


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# Study of Farm Production through Agricultural Loan at Shikalbaha Union of Karnafuli Upazilla, Chattogram

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## List of Abbreviations

| Abbreviation | Elaboration |
|---|---|
| GDP | Gross Domestic Product |
| No. | Number |
| tk | Taka |
| ml | milliter |
| GPA | Grade Point Average |

# ABSTRACT

Agriculture is essential for supporting economies, ensuring food security, and fostering prosperity, particularly in nations like Bangladesh. Agricultural loans or credit are crucial for empowering farmers and raising production due to the size of the rural workforce and the GDP contribution they make. This study looks into the connection between farm output in Shikalbaha union of Karnafuli, Chattogram and agricultural credit. It looks at how financial support affects productivity, technology uptake, and yield growth. The study assesses the efficiency of credit systems in enhancing agriculture, rural communities, and productivity. The results might influence regulations, enhance lending procedures, and support sustainable agriculture. Financial impact emerges, contributing to the field's advancement. The study conducted in the Karnafuli upazilla, close to the researcher's hometown, shows a balanced farmer experience with different family sizes and sources of income. With a move toward hygienic methods and trained labor, the majority of farmers rely on milk as a source of revenue. For the purchase of equipment or feed, short-term loans are typically obtained from BRAC Bank. While smaller farms prioritize cost-effective solutions, larger farms need significant loans for infrastructure and modern technologies. While Type B farms have a higher emphasis on value-added methods and milk quality, Type A farms receive larger loans and make more money from milk sales. The report offers guidance for agricultural policy, lending, and sustainable development.

**Keywords:** Milk production, Loan, Cost-effective solution, Development.

# CHAPTER 1
# INTRODUCTION

Agriculture stands as the backbone of economies around the world, playing a vital role in sustaining livelihoods, ensuring food security, and fostering economic growth. In the context of developing nations like Bangladesh, where a significant portion of the population depends on agriculture for their subsistence, exploring avenues that enhance farm productivity becomes paramount.48 percent of the nation's labor force is employed in agriculture, which directly employs nearly 90 percent of the nation's rural employees. As a sector, agriculture contributes 11.21% of the country's GDP (Alauddin *et al*., 2014). Although the sharing of livestock in the GDP has declined over the past few years, livestock production becomes very successful in increasing livestock population (BER, 2015). According to research, in Bangladesh, about 85% of dairy producers in rural regions are experiencing financial difficulties (Ismail, 2022). One such avenue is the provision of agricultural loans or credit, which serves as a catalyst for empowering farmers by enabling them to adopt modern farming practices, access essential resources, and ultimately boost production.

In terms of animal protein sources for the human diet, milk comes in third behind meat and eggs (DLS, 2006). The minimal amount of milk needed is 250 ml, yet each person only receives 45 ml. There is a huge gap between supply and demand (Jabbar, 2010). Dairy output is more reliable than meat and egg. Jobs are added as a result of cash flow, dairy production, processing, and marketing (Asaduzzaman, 2000; Omore *et al*., 2002).

The complicated connection between agricultural loans or credit and farm output in the specific regions of the Shikalbaha Union of Karnafuli, Chittagong, is the focus of this study. This study intends to shed light on the dynamics between credit access and technology adoption by investigating the effects of financial support on agricultural practices and productivity. This study aims to shed light on the efficiency of agricultural credit systems in boosting farm production, improving rural communities, and enhancing the region's overall agricultural landscape by closely examining the local context, economic conditions, and social factors. To make it easier for actual farmers to get credit, Bangladesh Bank has put in place a robust credit monitoring system and developed a new open agricultural loan allocation process at the union level (BB, 2011).

Through a combination of quantitative analysis, qualitative interviews, and field observations, this paper seeks to unravel the multifaceted connections between agricultural credits, farmer's output. The findings from this research could potentially inform policy decisions, improve lending practices, and contribute to the sustainable development of agriculture in Shikalbaha and beyond. As we delve into the intricate web of agricultural finance and its impact on farm production, a deeper understanding of the interplay between financial mechanisms and agricultural outcomes is poised to emerge.

# CHAPTER2

# MATERIALS AND METHODS

## 2.1 Study Area

The Karnafuli upazilla in the Chattogram district served as the study's location. The upazila's Shikhalbaha union was chosen because it has a relatively high density of dairy production. The Karnafuli upazilla can be simply represented by this region. Due to its proximity to my hometown, this upazilla makes it simple to obtain accurate information from both local authorities and farmers.

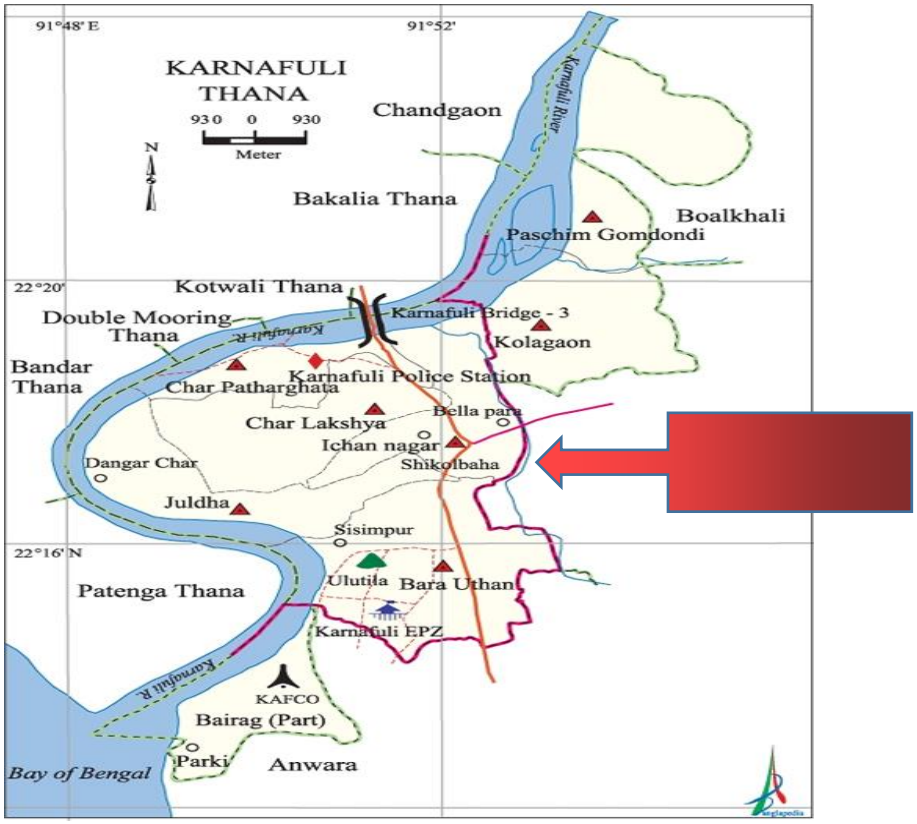


Figure 1: Map of Karnafuli thana indicating Shikalbaha union

## 2.2 Data Collection

This study employs a comprehensive research design that combines both qualitative and quantitative approaches to investigate the impact of agricultural loans or credit on farm production. A purposive sample of 15 farms was selected for data collection, with careful consideration given to the diversity of farm types and sizes. The data sources encompassed surveys, interviews, and relevant existing reports from agricultural and financial institutions.

The data collection procedures commenced with structured interviews conducted with farm owners, aimed at capturing their experiences, perceptions, and practices concerning the utilization of agricultural loans or credit. To ensure data accuracy and triangulation, the information gleaned from interviews was systematically cross-checked with data obtained from the Upazilla Veterinary Hospital. This cross-validation mechanism was implemented to corroborate the insights provided by participants and enhance the reliability of the findings.

## 2.3 Data Analysis

Following data collection, a meticulous process of data organization and structuring was undertaken to facilitate meaningful analysis. The analysis involved a two-fold approach: quantitative analysis through calculating percentages and means, and qualitative analysis by examining recurring themes and patterns emerging from interviews and observations. The interpretation of the findings hinges on the distinction between farm types, specifically farms with more than 50 cows and those with fewer, in relation to their utilization of agricultural loans. The primary variable of interest in this analysis is the farm type, and the goal is to discern which category of farmers is deriving greater benefits from the adoption of agricultural loans or credit.

Ethical considerations were of paramount importance throughout the research journey. Informed consent was obtained from all participants prior to their involvement in the study, and their privacy and anonymity were rigorously upheld. The study was conducted with a deep sense of responsibility to ensure that the data collection process respected the rights and dignity of the participants involved.

However, it is crucial to acknowledge certain limitations of this study. The relatively small sample size could restrict the generalization of the findings to a broader population.

Furthermore, biases might have been inadvertently introduced due to participants' potential inclination to provide socially desirable responses or inaccurate information. Despite these limitations, this study seeks to provide valuable insights into the intricate relationship between agricultural loans or credit and farm production, shedding light on the nuances that shape the experiences of different farm types.

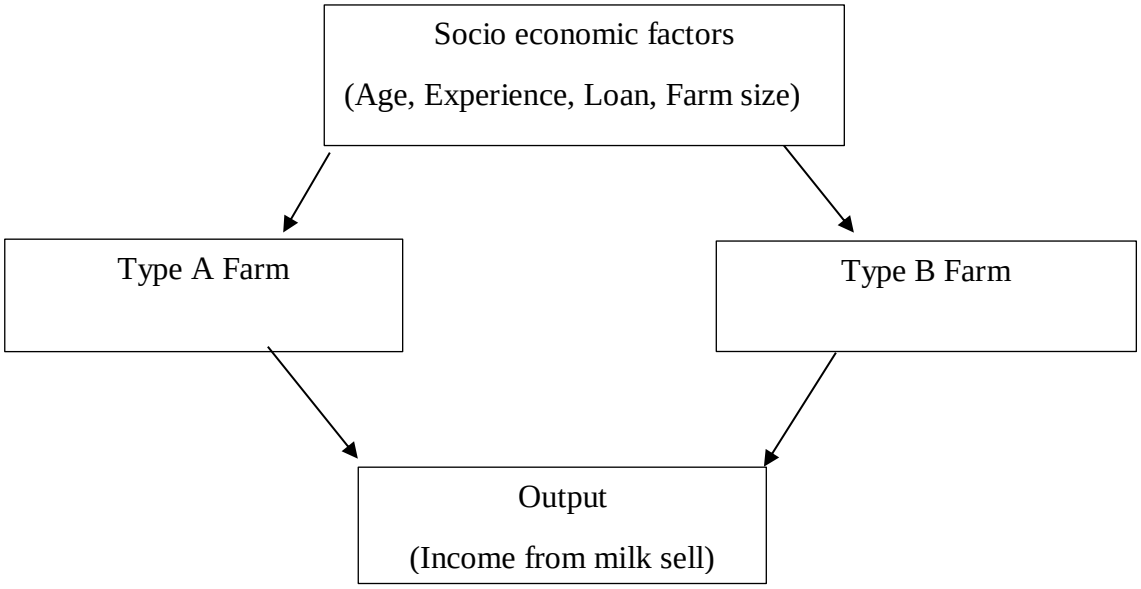


Figure 2: A Scheme Showing the Relationship between Farm Credit, Farm Input, Farm Output and Other Socio – Economic Factors. (Ekwere *et al*., 2014)

# CHAPTER 3

# RESULTS and DISCUSSION

## 3.1 Categorization of farm

In this study (Table 1), a total of 15 dairy farms were categorized based on the number of cows they have. Farms with more than 50 cows were classified as Type A, while farms with less than 50 cows were classified as Type B.

The distribution of dairy farms among these categories showed that Type A farms, with more than 50 cows, accounted for 40% of the total sample. On the other hand, Type B farms, with less than 50 cows, constituted the majority, making up 60% of the total sample.

This distribution highlights that there is a greater prevalence of dairy farms with fewer than 50 cows (Type B) compared to those with more than 50 cows (Type A).

**Table 1: Farm Categorization**

| Parameters | Categories | Number of respondents | Percentage (%) |
|---|---|---|---|
| Farm type | A type (> 50 cows) | 6 | 40 |
| | B type (<50 cows) | 9 | 60 |

## 3.2 General Information of owner & farm at Shikalbaha in Karnafuli thana

The distribution of farmer experience is fairly balanced, with 40% highly experienced (more than 20 years), 20% moderately experienced (10–20 years), and 40% having low experience (less than 10 years). According to (Quddus *et al.*, 2017) dairy cow farmers have an average of 12 years of farming experience. In terms of family size, most farmers have medium-sized families (80% with 5 to 6 members), while a minority have large families (20% with more than 7 members), and none have small families. In the context of income sources, a significant proportion of farmers rely solely on milk (80%) as their income source, while the remaining 20% supplement their income with other sources. Furthermore, the distribution of milking animal categories shows that 20% of farmers have a high number of milking animals

(more than 40 cows), 40% have a medium number (20–40 cows), and 40% have a low number (less than 20 cows) (Table 2).

**Table 2: General Information of owner & farm**

| Parameters | Categories | Number of respondents | Percentage (%) |
|---|---|---|---|
| Experience | High ( >20 yr) | 6 | 40 |
| | Medium (10-20 yr) | 3 | 20 |
| | Low ( <10 yr) | 6 | 40 |
| Family size | Large ( >7) | 3 | 20 |
| | Medium (5-6) | 12 | 80 |
| | Small (<5) | 0 | 0 |
| Lands have in production | Large ( >3 acre) | 7 | 47 |
| | Medium ( 2-3 acre) | 5 | 33 |
| | Low ( <2 acre) | 3 | 20 |
| Income Source | Only Milk | 12 | 80 |
| | Milk & others | 3 | 20 |
| Milking animal | High ( >40) | 3 | 20 |
| | Medium (20-40) | 6 | 40 |
| | Low (<20) | 6 | 40 |

### 3.3 Overall management information of farm

It can be concluded that while milking systems are still predominantly manual (100%), there is a notable shift towards more hygienic practices (53.33%) compared to unhygienic methods (46.67%). The involvement of skilled labour (66.67%) is higher than that of unskilled labour (33.33%), indicating a recognition of the importance of expertise in the milking process. Interestingly, treatment by veterinarians (53.33%) seems to be preferred slightly more than treatment by livestock service providers (46.67%). These trends highlight a positive inclination towards improved hygiene and skilled care in the milking process (Table 3).

**Table 3: Overall management information**

| Parameters | Categories | Number of respondents | Percentage (%) |
|---|---|---|---|
| Milking System | Manual | 15 | 100 |
| | Mechanical | 0 | 0 |
| Milking | Hygienically | 8 | 53.33 |
| | Unhygienically | 7 | 46.67 |
| Labor type | Skilled | 10 | 66.67 |
| | Non skilled | 5 | 33.33 |
| Treatment | By Veterinarian | 8 | 53.33 |
| | By LSP | 7 | 46.67 |

### 3.4 Loan related information of farm

The study conducted across 15 farms indicates that short-term loans were exclusively sourced from BRAC Bank (100%) (Table 4). The farms seeking loans were primarily divided into two categories: those acquiring equipment (20%) and those securing funds for purchasing feed (80%). Notably, none of the surveyed farms sought loans for land acquisition or established a line of credit during the study period. It specifically characterized the respondents' socioeconomic traits and quantitatively found a few of these farmers' socioeconomic traits that affect the amount of loan repayments they make (Afolabi *et al.,* 2010).

**Table 4: Information about loan**

| Parameters | Categories | Number of respondents | Percentage (%) |
|---|---|---|---|
| Loan type | Short term | 15 | 100 |
| | Land loan | 0 | 0 |
| | Line of credit | 0 | 0 |
| Source | Brac Bank | 15 | 100 |
| | Govt. Bank | 0 | 0 |
| | Grameen Bank | 0 | 0 |
| | Asha | 0 | 0 |
| Reason for seeking loan | Equipment | 3 | 20 |
| | Land | 0 | 0 |
| | Feed | 12 | 80 |

### 3.5 Production relation with loan variance according to farm

#### 3.5.1 *Loan Allocation Analysis*

Type A farms, despite representing a smaller proportion of the surveyed farms (40%), receive a higher average loan amount (21 lac taka) compared to Type B farms. This suggests that larger farms require more substantial financial support, possibly due to increased operational costs, infrastructure needs, and higher cattle numbers. The higher loan allocation for Type A farms may indicate their intention to invest in advanced technologies and equipment to manage larger herds. Type B farms, on the other hand, receive a lower average loan amount (15.5 lac taka) but represent a larger share of the surveyed farms (60%). This could imply that smaller farms are focusing on optimizing their operations with more modest loan support, potentially emphasizing cost-effective strategies to enhance productivity (Table 5).

**Table 5: Farm production relation with loan**

| Variance | Categories | No. (%) | Amount (mean) |
|---|---|---|---|
| Loan | Type A | 6(40) | 21.00 lac |
| | Type B | 9(60) | 15.50 lac |
| Milk sell | Type A | 6(40) | 65250 tk |
| | Type B | 9(60) | 39900 tk |

### *3.5.2 Income from Milk Sales Analysis*

Type A farms generate a significantly higher monthly income from milk sales per farm, amounting to 65250 tk. This could be due to their larger herd sizes, potentially yielding greater milk production. The higher income from milk sales might also be attributed to more sophisticated marketing strategies, access to bulk buyers, or the ability to cater to a larger market. Type B farms, while having a lower average income from milk sales (39900 tk per month per farm), still manage to achieve notable revenue. These farms might be adopting targeted approaches to maximize their milk's value by focusing on quality, local markets, or value-added products (Table 5).

# CONCLUSION

The analysis reveals that Type A farms, though representing a smaller fraction, secure higher loan amounts, potentially indicating their focus on adopting advanced technologies and managing larger herds. On the other hand, Type B farms, while receiving smaller loans, optimize operations through cost-effective strategies. Type A farms generate greater monthly income from milk sales due to larger herds and refined marketing, whereas Type B farms achieve notable revenue by emphasizing milk quality and value-added approaches.

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The author

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# BIOGRAPHY

I'm Md. Piar Rahaman Shihab, the child of Hasina Akter and Abdur Rahman. I received a 5.00 grade point average (GPA) for my SSC from Chattogram's Gachbaria N.G. Govt. Model High School in 2014, and a 5.00 grade point average (GPA) for my HSC from Hazera Taju University College in 2016.The Chattogram Veterinary and Animal Sciences University's Faculty of Veterinary Medicine currently has me working as an intern veterinarian. I hope to practice veterinary medicine in the near future. Public health is a subject that interests me greatly, and I hope to conduct study soon.

# APPENDIX

## Questionnaire

### 1. Owner Information

a) Name:

b) Gender:

c) Age:

d) Experience:

e) No. of family members:

f) Mobile:

### 2. Farm Information

a) Name of the farm:

b) Farm type:

c) Location:

d) No. of animals:

e) Milking animals:

f) Animal type:

g) Types of floor: Brick/ Concrete/ Sand/ Others

h) Bedding Materials:

i) Foot bath: Yes/ No

j) Milking Time:

k) Milking at fixed time: Yes or No

l) Legal structure of farm:

m) Lands have in production:

n) Milk production:

**3. Availability of feeds and fodder**

a) Frequency of feed provide:

b) Type of feed:

c) Amount of feed:

d) Availability of green fodder:

e) Price of feed:

f) Grazing area:

**4. Economic capability analysis of farmer**

a) Economic condition:

b) Monthly Income:

c) Daily income source:

d) Daily expenditure list:

e) Daily food cost + medication cost + children's education cost :

f) Source of taking loan:

g) How they take loan and in what condition?

h) Loan backing system:

i) Percentage of pressure they got for backing loan:

j) Fate of failure to give back loan:

k) Last year revenues:

**5. Economic analysis of farm (Without loan)**

a) How you manage farm without loan?

b) Are there any difficulties? Yes or No

c) Are there any facilities other than loan ?

**6. Economic analysis of farm (With loan)**

a) Type of grants they applied for last year: Short term/ Land loan / line of credit

b) Reasons for seeking financing: Equipment/ Land/ Feeds

c) Interest rates:

d) Facilities :

e) Difficulties:

f) Micro-credit loan installment cost(weekly):

g) Installment source:

100000 Tk Loan Scheme

1. Security Money:
2. Accumulation:
3. Insurance:
4. What amount they get on first day?
5. How many installment they give?
6. Did they take project?(As Bound)
7. Weekly Income from project?
8. How much they give as installment from project?
    a) Loan application process : Complicated / Not complicated
    b) Type of organizations giving loan : Govt. Bank/ Non-govt. Bank/ NGO
    c) Give personal and financial information to them : Yes / No

I have been given information about research title and discussed with researcher's Md. Piar Rahaman Shihab who is conducting this research as a part of DVM degree, supervised by supervisor Dr. Tahmina Bilkis (Associate Professor) in the department of Genetics and Animal Breeding at the CVASU. My participation in this research is voluntary and the data collected from me will be used for thesis and I consent it to be used in this manner.

**Signature**