VALUE CHAIN ANALYSIS OF PINEAPPLE IN TANGAIL DISTRICT OF BANGLADESH

BY

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This is to certify that thesis entitled, "**VALUE CHAIN ANALYSIS OF PINEAPPLE IN TANGAIL DISTRICT OF BANGLADESH**" submitted to the Faculty of **AGRIBUSINESS AND MARKETING,** Sher-e-Bangla Agricultural University, Dhaka, in partial fulfillment of the requirements for the degree **of MASTER OF SCIENCE** in **AGRIBUSINESS AND MARKETING,** embodies the result of a piece of bona fide research work carried out by **KHOSNUR JAHAN** Registration No. **19-10281** under my supervision and guidance. No part of the thesis has been submitted for any other degree or diploma.

I further certify that such help or source of information has been availed of during the course of this investigation has duly been acknowledged.

Dated: ------------------------------

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ABSTRACT

The present study was designed to measure value chain analysis of Pineapple in Tangail district of Bangladesh. Primary data were collected from the pineapple growing area of Madhupur and Jalchatro. Hundred producers and sixty intermediaries were interviewed for the study through simple random sampling and purposive sampling procedure. Producers were selected by using simple random sampling and intermediaries were selected by purposive sampling. BCR for pineapple production in this study was 1.35 which indicates that pineapple production was profitable in the study area. In marketing system of pineapple, many value chain actors were involved such as Faria, Bepari, Arathdar and retailer. In this study area, it was found that young and illiterate farmers were mostly engaged in pineapple cultivation. Farm gate price of pineapple was Tk. 2316.66 per 100 kg and sell price of pineapple paid by retailers was Tk. 4670 per 100 kg. Total marketing cost was estimated at Tk. 3070.3 per 100 kg of pineapple. Among all intermediaries Farias' cost was highest and the lowest for Retailers. The marketing margin of Faria, Bepari, Arathder, Retailers were Tk.322.10, Tk. 182.35, Tk.131.4 and Tk.363.84 respectively for 100 kg pineapple. Pineapple production efficiency was 96% in the study area. The study also identified some major problems faced by producers and actors in the pineapple value chain. The major problems faced by farmer were lack of scientific knowledge (80%), lack of capital (52%), lack of seedling (40%), perishability (64%), lack of credit facilities (57%) etc. Market actors also suggest some recommendations to solve their problems.

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ABBREVIATIONS

BBS	Bangladesh Bureau of Statistics.
FC	Fixed cost
GDP	Gross domestic product
GR	Gross return
NR	Net return
TSP	Triple super phosphate
MOP	Muriate of potash
HA	Hectare
NGO	Non-Government Organization
%	Percentage
Tk	Taka
TFC	Total fixed cost
TVC	Total variable cost

CHAPTER I

INTRODUCTION

1.1 Background of the study

Pineapple (*Ananuscomosus*) is a tropical fruit and this fruits commercially cultivated worldwide as a high-value crop. Its food value is very high as it contains vitamins A, B and C and minerals like calcium, potassium, magnesium and iron. It is also a good source of enzyme. The fruit is consumed as both fresh and processed forms. A large number of value-added products like, jam, jelly mixed jam, etc. can be produced from it, which will provide remunerative prices to the farming community and will also generate employment for rural people (Roy et.al. 2016).

Total production of pineapple in Bangladesh is 218048 M.Ton in 2020-2021 where Tangail district produce 126538 M.Ton in 2020-2021 (BBS 2020-2021). Generally, it is grown almost all over Bangladesh especially in hilly and high land area. Tangail is first, Rangamati is second, Mymensingh is third, Chittagong is fourth, Gazipur is fifth, Khagrachari is sixth in pineapple cultivation. Pineapple is extensively cultivated in all over Madhupur Upazila of Tangail District. June, July and August month are the peak time of pineapple harvesting in Bangladesh. Only a few pineapples are harvested during September and October month. Generally, the ripen pineapple is consumed by the people of Bangladesh. Green pineapple is also used for making pickles. After extraction of its juice, the left over is used as livestock feed and also the tender leaves are used for the same purpose. Pineapple is also recommended as medical diet for certain diseased persons. At least ninety varieties of pineapple are cultivated in the world. (Islam et al. 2017). In Bangladesh, however, three varieties of pineapple are mostly grown. They are: Giant Kew, Honey Queen and Ghorasal. In Tangail district, mainly Giant Kew variety of pineapple has intensively been cultivated by the farmers for the last few years. One local variety named “Asshina” is grown by a few farmers of Tangail district. The variety Honey Queen is largely produced in Chittagong hilly zone. Seasonal Bangladeshi fruits are being exported to different countries of the world (Islam et.al. 2017).

1.2 Importance of pineapple in the economy of Bangladesh

Food security and nutritional supports are essential for the welfare of any country**.** Fruits play a vital role in the both cases. As an important fruit, pineapple provides economic strength to the poor people in some regions of Bangladesh where no other fruits or crops grow well. So, the production of pineapple is increasing day by day in Bangladesh. Government of Bangladesh is deeply concerned for the continuous development of agriculture sector. The country has a strong structure down to the grass root level to closely supervise and monitor the issues of farmers and lead to maximize the productivity by optimal uses of sources. (Productivity Assessment Survey of Different Agricultural Crops program, 2020)

1.3 Pineapple Health Benefits

Pineapple is good for our overall health and we can consume this fruit by slicing it or by making juice out of it. Some pineapple health's benefits are mentioned below:

1.3.1 Treats for Cold and Cough: This healthy fruit contains bromelain which is an enzyme that has inflammatory properties that can fight infections and kill bacteria of cold and cough.

1.3.2 Good for teeth: Eating pineapple is said to strengthen gums and keep health strong. Teeth and bones are made up of calcium and pineapple does have good content. It also does have manganese that also helps in strengthening bones and teeth.

1.3.3 Aids in digestion:

Pineapple has a rich source of bromelain, dietary fiber and vitamin C that helps in good digestion.

1.3.4 Treats for Acne: Pineapple juice has loads of vitamin C and antioxidants that can treat acne, sun damage and uneven skin toning. Bromelain is a content that can fight against inflammation and swelling in your joints.

1.3.5 Promotes weight Loss: A recent study has proven that pineapple does have anti-obesity effect. According to the results of this study, raw pineapple juice has been seen to prevent the deposition of fat in rats that were put on a specific diet.

1.4 Present situation of Pineapple production

The production capacity of pineapple of Rangamati and Gazipur division comes out with a plentiful amount (BBS, 2021). The Tangail region is the acme of pineapple cultivation which covers 49% of total pineapple planted land and 59% of mass production (Farid Hossain, 2017; karim et al, 2021). Table 1.1 shows the area and production of pineapple in Bangladesh between 2015-2016 and 2019-20. However, there was a slightly downward trend. In 2015-2016 pineapple production was 7200000 MT and now in 2019-20 production decreases which was 218048 MT (Table 1.1).

Table 1.1: Total area and production of pineapple in Bangladesh

Year	Area (acre)	Production (MT)
2015-2016	33000	7200000
2016-2017	35000	212000
2017-2018	35000	208000
2018-2019	35000	217439
2019-2020	37000	218048

Source: BBS. 2021

1.4.1 District wise pineapple production in Bangladesh

Among all the district of Bangladesh top pineapple producing districts were Tangail, Gazipur, Rangamati, Khagrachari, Chattogram. Total production of pineapple in Tangail district was 126538 MT in 2018-2019, 126865 MT in 2019-2020 and 127795 MT in 2020-2021 (Table 1.2).

Table 1.2: District wise pineapple production in Bangladesh

District	2018-2019		2019-2020		2020-2021	
	Area (Acre)	Production (MT)	Area (Acre)	Production (MT)	Area (Acre)	Production (MT)
Tangail	18107	126538	18673	126865	17992	127795
Gazipur	2858	10449	2849	10560	2867	10624
Rangamati	3328	25235	3306	25170	3314	25160
Khagrachari	2054	7596	2112	7975	2133	8432
Cattogram	2623	10457	2489	10576	2122	8245

Source: BBS 2021

1.5 Export of pineapple

The export value of Bangladesh was USD 7.24 Thousand, and the export volume was 2.90 thousand metric Ton in 2021. Pineapple exporting countries from Bangladesh are Oman, Japan and Denmark. The export volume is $3.99 thousand in Oman, $3.24 thousand in Japan. (www.tridge.com)

Pineapple exporters of Bangladesh

Allied Food & Extract Industries Limited is one of the leading producer and exporters of high quality organic Pineapples form Bangladesh. Other exporters of pineapple are Pran agro limited, Hashem Foods Limited, Agricultural Marketing Co. Ltd, Faisal's Agro ARS Ltd, Crops & Corns Limited, Madco Exim,4S International Ltd. Manahil Enterprises, Rani Global Pvt. Ltd, ZSL Trading Corporation , Avalon Associates Ltd. (www.tridge.com)

1.6 Justification of the study

Pineapple is an agricultural product. Research studies on pineapple marketing in Bangladesh remain scanty. The present study is an attempt to get an in-depth view of marketing process of pineapple in Tangail district. Pineapple may be a handsome revenue earning fruit in Bangladesh. It is necessary to investigate cost and revenue of pineapple production in Bangladesh.

In developing countries, like Bangladesh pineapple is produced by small holder farmers. At present pineapple production is facing many problems. Pineapple is exporting from Bangladesh. It is necessary to identify the existing value chain of pineapple to increase export.

Among all the district of Bangladesh, Tangail is first for producing pineapple. That's why I choose Tangail district for my study. The finding would help both the farmers and value chain actor. The study may suggest maximum cost efficiency estimate.

The finding would also help the whole marketing channel by knowing the variation of price fixed by market actors. Because of knowing by every actor it will reduce the inequality of prices of pineapple. The study may suggest overall marketing system of pineapple. These studies give guideline to improve existing pineapple marketing system in Bangladesh. Findings of this study may be helpful to take appropriate policy.

1.7 Objectives of the study:

The objective of this study is to investigate the value chain of pineapple in Bangladesh. The specific objectives of this research are as follows:

i. To draw the value chain analysis of pineapple and identify the major actors of pineapple,
ii. To measure the cost efficiency of pineapple production using cost frontier model
iii. To identify the constraints of pineapple production, marketing and suggest measure for the improvement of pineapple marketing in the study area.

CHAPTER II

METHODOLOGY

2.1 Introduction

Methodology is an indispensable and integral part of any research. This chapter presents the methodology followed in the study, which included the selection of the study area, selection of samples, preparation of survey schedule, method of data collection, period of survey, editing and tabulation of data and analytical techniques.

2.2 Selection of study area:

As the selection of the study area is an important step and it's mainly depends on the objectives of study Tangail district is the leading zone in respect of pineapple production in Bangladesh. Some preliminary visits were made in two villages, name jalchatro and Rosulpur under tangail district to select the areas for present study. All kinds of value chain actors needed for the study are available in these two selected areas where easy accessibility and good communication system exist. Jalchatro bazaar was selected to collect data for the intermediaries.

2.3 Selection of period of study:

Data were collected during the period from March to June, 2022 through face to face interview.

2.4 Selection of Samples and sampling techniques:

Sampling is an important of survey research. Primary data field survey method is used for the present study. Farmers were selected by simple random sampling from the study areas. Total 160 samples were selected. Of them 100 producers (farmers), 60 middlemen (Faria, Aratdar, Bepari) and data were collected from the study area.

A list of pineapple farmers in madhupur upazilla was prepared. Then 100 farmers were selected randomly. And 60 middlemen were selected purposively. The intermediaries

dealing with pineapple were recognized into four groups Faria, Bepari, Aratdar, retailer (Table 2.1)

Table 2.1: Different actors and sizes of sample

Value chain actors	Sample size
Producers	100
Faria	15
Bepari	15
Aratder	15
Retailer	15
Total	160

2.5 Data collection instrument

Two set of pretested interview were used for data collection. One interview schedule was used for farmer and another interview schedule used for pineapple middlemen.

2.6 Preparation of the Survey Schedule:

Three separate types of interview schedules were prepared for collecting necessary data from different types of samples. An interview schedule contains questions about the production, storage, marketing and selling of pineapple at the grower's level. Another interview schedule was prepared for collecting data from pineapple traders and including question related to buying, storage and selling of pineapple.

2.7 Data Collection:

Relevant data was collected from the selected samples through face to face interview. Primary data were collected for the study. Primary data was collected by face to face interview from the study areas. The objectives of the study were clearly explained during data collection. The data were collected in local units and then that were converted into standard units. Farmers were requested to provide correct information as far as possible.

Many of the respondents did not have any records of their businesses and activities. This problem was confronted by memory recalling technique.

2.8 Editing and Tabulation of data:

After collecting raw data, the next step was editing and processing for tabulation to minimize errors. After completing editing and processing data, the processed data were tabulated in excel sheet. Some tables were prepared to achieve the objective of the study.

2.9 Analysis of data:

The collected data were analyzed according to the objectives of the study. Analysis was done using the concerned software Microsoft Excel version and STATA 14. The study used both descriptive and analytical techniques. Average and percentage were used to the presentation of data.

2.9.1. For Cost and revenue

The total cost of production

Total cost of production (Tk./ha) = Labor cost (Tk./ ha) + seedling cost (Tk./ ha) + Manure cost (Tk./ ha) + Input transportation cost (TK./ha) + Interest on operating capital (Tk./ ha) + Land use cost (Tk./ ha).

Gross revenue (Tk. / ha) = Yield (quantity/ ha) × Sales price (Tk./ ha)

Total cost (Tk. / ha) = Total production cost (Tk. / ha) + Marketing cost (Tk./ha)

Net revenue = Gross return (Tk. / ha) - Total cost (Tk./ ha).

The Benefit Cost Ratio

$$\text{Benefit cost ratio} = \frac{\text{Gross return (Tk./ha)}}{\text{Total cost (Tk./ha)}}$$

2.9.2. For marketing margin

The marketing margins and net margins of intermediaries were estimated by using the following formula:

Marketing margin (Tk. /100 kg) = Sale price (Tk./100 kg) – (Purchase price (Tk./100 kg) + Total marketing cost (TK/100 kg)

2.9.3. For cost efficiency

Stochastic frontier cost function

Schmidt and Lovell (1979) developed a simultaneous equation cost frontier model designed to provide estimates of input-oriented technical efficiency and input allocative efficiency. Such dual functions described the results of optimizing responses to input and output prices and constraints. Since the stochastic frontier cost function is the dual function of the production frontier, the formulation of the corresponding cost frontier is the same as that of production frontier; but with the difference in the formulation of one sided error component, u_i. In general, the stochastic cost frontier model can be represented by:

$$\text{Ln } C_i = \text{Ln } C\ (Y_i, W_i; \alpha) + v_i + u_i$$

Where, C_i is the observed cost of the i-th farm, Yi is a vector of outputs, W_i is a vector of input prices, α is a vector of unknown parameters to be estimated, u_i is a one sided, non-negative disturbance capturing the effects of inefficiency, v_i is a two sided disturbance cap. In this model the inefficiency effect, u_i is added in the cost frontier instead of being subtracted, as in the case of production frontier. This is because the cost function represents minimum cost, whereas the production function represents maximum output. turning the effects of statistical noise.

Empirical Cobb-Douglas frontier cost function:

The empirical Cobb-Douglas frontier cost function with double log form can be written by normalizing seedling price rate as:

$$\ln\left(\frac{C_i}{W_{1i}}\right) = \alpha_0 + \alpha_1 \ln(Q_i) + \sum_{j=2}^{15} \alpha_j \ln\left(\frac{C_{ji}}{W_{1i}}\right) + \sum_{k=1}^{5} \mu_k D_{ki} + V_i + U_i$$

Where,

Ln = Natural logarithm;

C_i = Cost of production of the i-th farm (Tk. /ha);

Q_i = Output of the i-th farm (kg);

W_{1i} = Seedling/ saker price rate of the i-th farm (Tk. /ha);

W_{2i} = Price Family wage cost of the i-th farm (Tk. /man-days);

W_{3i} = Price of power tiller cost of the i-th farm (Tk. /ha);

W_{4i} = Price of urea cost of the i-th farm (Tk. /kg);

W_{5i} = Price of Triple super phosphate cost of the i-th farm (Tk. /kg);

W_{6i} = Price of Muriate of potash cost of the i-th farm (Tk. /kg);

W_{7i} = Price of Gypsum cost of the i-th farm (Tk. /kg);

W_{8i} = Price of manure of the i-th farm (Tk. /kg);

W_{9i} = Price of pesticide cost of the i-th farm (Tk. /kg);

W_{10i} = Price of insecticide of the i-th farm (Tk. /kg);

W_{11i} = Price of land cost of the i-th farm (Tk. /kg);

D_{1i} = Dummy variable for age of the i-th farm (1 = high and medium high age, 0 = otherwise);

D_{2i} = Dummy variable for household size of the i-th farm (1 = Big household, 0 = otherwise);

D_{3i} = Dummy variable for Access TV of the i-th farm (1 = have access, 0 = otherwise);

D_{4i} = Dummy variable for having experience of the i-th farm (1 = have access, 0 = otherwise);

V and u are assumed normal and half normal distribution, respectively; and α's, μ's are parameters to be estimated.

2.10 Problems Encountered in Collecting Data:

- Some respondents did not keep any written records of the farming activities. Therefore, the researcher had to depend upon their memory;
- Some respondents hesitated to answer the question. Because they had no idea about this type of research work;
- Since the respondents remained busy at their work, they were not always available at home. For this, frequent visits were made to get information from them;

- The data were cost and revenue related. That’s why they did not feel free to answer the entire question such as revenue.
- It was very difficult to collect data from intermediaries who hesitated to answer the question, because they did not know about this type of interview before.

CHAPTRER III
LITERATURE REVIEW

Introduction

The main purpose of this chapter is to review the available studies related to present research. In any research review of literature is essential; because it provides a scope for reviewing the stock of knowledge and information relevant to the proposed research. In the business literature of Bangladesh, there is little information on pineapple value chain in Bangladesh. The studies in Bangladesh and different countries of the world which have relevance to the present study are reviewed here in brief.

Hossain and Islam (2017) conducted a review paper on "pineapple production status in Bangladesh." This paper discussed the area, production, yield and importance of pineapple in Bangladesh." They observed that total 39583 acres of land was cultivated with production 234493 M Tones (2009-10). They also found that expansion of pineapple cultivation through proper management can improve the socio-economic conditions of farmers in Bangladesh.

Ahmed et al. (2017) conducted a study on "Development and quality evaluation of canned pineapple." The study was done to investigate the chemical constituents of a developed canned pineapple product and to evaluate the microbiological quality of the product. The moisture content, ash content, fat, crude fiber, protein content of fresh pineapple were 81.5%, 0.38%, 0.2%, 1.4% and 0.5%. The moisture content, ash content, fat, crude fiber and protein content of canned pineapple were 70%, 0.35%, 0.4%, 1.9% and 1.5% respectively. These Chemical constituents of the canned pineapple were almost similar with the raw fresh pineapple except the crude fiber and protein. The yeast and mould present in the product were also counted by using PDA (potato dextrose agar). The yeast and mould count for the product was within the consumer safety limit.

Islam and Hossain (2018) conducted a review paper on "Pineapple production status of Bangladesh." The review paper discussed the area, production, yield and importance of pineapple in Bangladesh. The study showed an upward trend in Bangladesh. Total 39583 acres of land was cultivated with the production of 234493 M tones pineapple in Bngladesh

in 2016-17. The study also found that it was widely cultivated in Tangail, Mymensingh, Gazipur, Sylhet, Moulvibazar, Chittagong districts. The study mentioned that Tangail district of Dhaka division was the pioneer of pineapple production.

Akter et al. (2018) conducted a study on "exploring economic efficiency of pineapple production at Madhupur Upazilla of Tangail district, Bangladesh." They estimated the economic efficiency of pineapple production at Madhupur Upazilla of Tangail district, Bangladesh. The mean economic efficiency was estimated as 82.10% across the study area. The study takes 100 farmers' data using multistage sampling technique indicate that there is still an opportunity for pineapple farmers to minimize cost.

Kaysar et al. (2018) conducted a study on "A comparative profitability of pineapple-mono crop and pineapple intercrops of Modhupur area in Tangail district of Bangladesh." Cost and return analysis of the study showed that total cost incurred for producing pineapple mono crop, Pineapple, Banana and Aroid production were Tk. 312849.72, Tk. 395894.01 and Tk. 377013l25 per hectare respectively. Per hectare net return for Pineapple, Papaya and Pineapple, Banana, Aroid production were Tk. 492111.00 and Tk. 195704.75 which were higher than that of pineapple mono crop (Tk. 157675.28). On the other hand, BCR for Pineapple, Papaya and Pineapple, Banana, Aroid production were 2.24 and 1.52 which were higher than the of mono crop (1.50). Final founding of the study was both pineapple mono-crop and inter-crops production were profitable. Among them pineapple inter-crops cropping pattern were more profitable then pineapple-monocrop.

Sharmin et al. (2019) conducted a study on "Comparative profitability of sole pineapple, pineapple-papaya and pineapple-banana-arum cultivation in Tangail District of Bangladesh." The major findings of the study revealed that sole pineapple, pineapple-papaya and pineapple-banana-arum cultivation in the study areas were profitable, among which, pineapple-papaya cultivation was relatively more profitable than the two other patterns. It was evident from Cobb-Douglas type production function that seed, human labor, fertilizer, insecticide, power tiller and manure had significant impact on gross return from sole pineapple, pineapple-papaya, and pineapple-banana-arum production.

Olana et al. (2019) conducted a study on "value chain analysis of pineapple *(Ananascomosus*) production and marketing from traditional agro forestry system." The study revealed that producers receive less benefit in spite of their effort and role in the production. Another finding of their study is perishable nature of pineapple is the major problem and farmers are forced to sell pineapple at low price.

Acharjee et al. (2020) completed a survey on "assessment of pineapple value chain in some selected areas of Tangail district." The study objective was to identify the actors in pineapple value chain, assess profit margins of main actors in Tangail districts. The result revealed average yield of pineapple per acre was 2510 pineapples per acre and average price at firm level was Tk. 18 per piece. The study concluded that pineapple production in Tangail district was plentiful amount.

Datta et al. (2020) conducted a study on "socio-economic status of pineapple growers in moulovibazar district of Bamgladesh". The study examines the different socio-economic variables of pineapple farmers. The study concluded that there have been some differences among small, medium and large farmers on the basis of socio-economic characteristics and they also found that socio-economic characteristics have positive impact on pineapple farmers in study study area.

Mou et al. (2020) concluded a study on comparative profitability of conventional and chemical free pineapple production in Madhupur Upazilla of Tangail District." For comparing the profitability of chemical-free and conventional pineapple farming two groups of pineapple growers are chosen non-adopters, adopters. Per acre total cost were estimated Tk. 165477 and Tk. 164285.66 respectfully for non-adopters and adopters. On the basis of total cost, the benefit cost ratio was 1.92 for non-adopters implying that Tk. 1.92 would be earned by investing Tk. 1.0 in pineapple production in conventional pineapple production and BCR was estimated Tk. 2.45 for adopters implying that Tk. 2.45 would be earned by investing Tk. 1.00 in chemical free pineapple. They also showed that chemical free pineapple growers' net return is higher than non-adopters. They concluded that chemical free pineapple is profitable.

Sarker et al. (2020) conducted a study on 'Technical efficiency analysis of pineapple production of Madhupur Upazilla of Tangail district, Bangladesh. They took 100 sample of pineapple. Their research show that technical efficiency of farmers ranges from 61.61% to 99.95%. They also indicate that input variables such as area, tillage cost, seedling cost are significant to increase the quantity of pineapple production.

Dhar et al. (2022) conducted a study on "Financial profitability and value chain analysis of pineapple in Tangail, Bangladesh." A total 100 stakeholders were interviewed randomly using a structured questionnaire to collect primary data. The study concluded that 76.15% farmers used gaintkew variety for pineapple production and in the study area. They found that pineapple production was profitable. Among the market actors, wholesaler added a highest value of Tk. 13 per piece (34.2% value addition).

Conclusion

The above review indicates that a few studies have been conducted on pineapple production, cost efficiency, value-chain and many other terms. The result of these studies varies widely in different reasons. Most of the studies deal with production and value chain of Pineapple. Although these studies are important from the marketing point of view but the study on supply chain is also of great importance for market participants and policy makers. Results of the study can help to identify the stakeholders of the Pineapple chain and their role in the marketing system, estimate the value addition of Pineapple at different stages and examine the post-harvest loss and its impact on farmer's net price.

I found cost efficiency estimate of pineapple production, which was new. I also have identifed production and marketing problems of pineapple and gave farmers and intermediaries suggestion to solve their problems.

Considering the above perspective, the present study has been undertaken. It is expected that the present study will serve as the base for further studies in this almost untapped but profitable and potential area of the business. Moreover, it will contribute to the stock of existing knowledge, especially in the field of Value chain of Pineapple and value addition at different levels.

CHAPTER IV

SOCIO-DEMOGRAPHIC CHARACTERISTICS OF PINEAPPLE FARMERS

4.1 Introduction

The socio-demographic background and characteristics of the farmer's influences the productions to a great extent. So, a description of the characteristics of farmer is necessary for analyzing the main objective of the present study. Socio-demographic characteristics of the farmer's included their age, education, loan, training, and extension contract of the respondent. These were described below:

4.2 Age

It is seen from the table that 24.0% of pineapple farmers were belongs to the age group 20-30 years. 40.0% of the pineapple farmers were the age group of 30-40 years. 20.0% of the pineapple farmers were in the age group of 40-45 years. Only 16.0% of the pineapple farmers were in the age group of 51-60 years.

Table 4.1: Distribution of pineapple farmers according to their age

Age categories (years)	Number of farmers	% of farmers
20-30	24	24.0
30-40	40	40.0
40-50	20	20.0
51-60	16	16.0

Source: Farmer's household survey, 2022

4.3 Educational status

Table 4.2 showed the destination of farmers according to their education level. 42.0% of the farmers are illiterate, 28.0% of the farmers were completed primary education. 18.0% of the farmers were completed secondary education. 12.0% of the farmers were completed higher secondary education.

Table 4.2: Distribution of farmers according to their education level

Education categories	Number of farmers	% of farmers
Illiterate	42	42.0
Primary	28	28.0
Secondary	18	18.0
Higher secondary	12	12.0
Total	100	100.0

Source: Farmer's household survey, 2022

4.4 Others characteristics

Table 4.3 showed pineapple producer other characteristics. 31.0% of the pineapple farmers got training. 14.0% of the pineapple farmers were contacted with agricultural extension officer. 60.0% of pineapple farmers had access to TV. 29.0% of pineapple farmers used organic fertilizers. 25.0% of farmers took loan for production. 100.0% of farmers have access mobile phone.

Table 4.3: Other socio-demographic characteristics of pineapple producer

Items	% of producer
Producer get training	31.0
Get extension contract	14.0
Access to TV	60.0
Used organic fertilizer	29.0
Took loan for production	25.0
Access to Mobile phone	100.0

Source: Farmer's household survey 2021

CHAPTER V

COST AND REVENUE OF PINEAPPLE PRODUCTION IN TANGAIL DISTRICT OF BANGLADESH

5.1 Per hectare input used in pineapple production

Different quantities of input were used in pineapple production. The following Table 5.1 showed per hectare input used in pineapple production in the Tangail district of Bangladesh.

5.1.1 Labor quantity

In pineapple production farmers used hired labor in land preparation, fertilizer application, insecticides application and pesticide application and harvesting etc. They hired labor on daily (8 hours working day) wage basis. Average 42.48 man-days/ha labors needed for pineapple production (Table 5.1).

5.1.2 Seedling quantity

Seedling is the most important input in pineapple production. In the study area, the seedling/saker required for pineapple production is 31392.959 piece/ ha (Table 5.1).

Table 5.1: Per hectare input used for pineapple production in Tangail district of Bangladesh

Input items	Value
Labor(man-day/ha)	42.48
Seedling/saker piece/ha)	31392.95
Fertilizer: (Kg/ha)	
Urea	610.39
TSP	291.09
MOP	477.92
Gypsum	221.87
Insecticide	102.97
Pesticide	101.14
Cow dung	31.57

Source: Farmer's household survey, 2022

5.1.3 Fertilizer quantity

A huge amount of fertilizer is needed for pineapple production. Farmers used different types of fertilizer in their land. Farmers used 610.39 kg of urea and 291.09 kg triple super phosphate (TSP) for pineapple production. They also used 477.92 kg of muriate of potash, 221.87 kg of gypsum and 31.57 kg of cowdung per hectare in the study area (Table 5.1).

5.1.4 Insecticide and pesticide quantity

Pineapple plant needed a vast amount of insecticide and pesticide. Insecticide needed for pineapple production was 102.97 kg/ha and pesticide needed for pineapple production was 31.57 kg/ha (Table 5.1).

5.2 Cost of input

To investigate profitability by costs and revenue of a crop, it is essential to calculate all the cost items which are deducted from the value of output. The output was calculated by prevailing market price which is multiplied with quantity.

Generally, cost items were classified be

1. Human labor
2. Seedling
3. Fertilizers (Urea, Triple super phosphate, Muriate of potash, Gypsum, Cowdhung)
4. Insecticides
5. Pesticides
6. Power tiller
7. Input transportation

5.2.1 Cost of labor

Labor cost was the most important in pineapple production. Labor costs included hired labor and family labor costs. The hired labors were usually paid in cash and some were paid in dept. The calculation of the cost of hired labor was actual wage paid by the farmers includes with meal of without meal. Labor was measured in terms of man-days which consist of 8 hours. The hired labor costs were Tk. 22773.79 per hectare and family labor

costs were TK. 8350.948 per hectare. However Total labor costs were Tk. 31124.74 per hectare (Table 5.2).

5.2.2 Cost of seedling

In the study area, all the farmers used purchased seeds. They purchased it from the local market. Sometimes it varies farmer to farmer. Per hectare Seedling costs were Tk. 131945.47 for pineapple production (Table 5.2).

Table 5.2: Per hectare cost of pineapple production in Tangail district of Bangladesh.

Input wise cost Tk./ha	Value
Seedling cost	131945.47
Power tiller cost	6012.95
Human labor cost	31124.74
Hired labor cost	22773.79
Insecticide cost	5562.94
Pesticide cost	4633.72
Urea cost	11508.09
Triple super phosphate cost	7652.58
Muriate of potash cost	8678.25
Gypsum cost	4948.82
Cowdung cost	1013.22
Interest on loan	603.64
Input transportation cost	1208.79
Total Variable cost	206542.30
Interest on operating capital	3098.13
Land rental cost	42047.33
Family labor cost	8350.94
Total fixed cost	53496.41
Total cost	260038.71

Source: Farmer's household survey, 2022

5.2.3 Power tiller cost

In the study area, almost all farmers used power tiller for land preparation. Power tiller costs of pineapple cultivation were Tk. 6012.95 per hectare in the study area (Table 5.2).

5.2.4 Fertilizer cost

Fertilizer costs bear the vast amount of costs in pineapple production. Farmers used different types of fertilizer in their land. Urea cost was Tk. 11508.09/ ha and triple super phosphate cost was Tk. 7652l58/ha in the study area. Muriate of potash cost was Tk. 8678.25/ha. Gypsum cost was Tk. 4948.82/ha in the study area. Cowdung cost was Tk. 1013.22/ha (Table 5.2).

5.2.5 Insecticide and pesticide cost

Per hectare insecticide and pesticide costs were respectively Tk. 5562.94 and Tk. 4633.72 per hectare (Table 5.2).

5.2.6 Input transportation cost

Farmer need different mode of transportation for input transportation. They pay daily basis for input transportation. Input transportation costs incurred Tk.1208.793/ha (Table 5.2).

5.3 Land use cost

In the study area, land use cost estimated for cultivating period at the prevailing rate. In case of pineapple, cultivating period was considered for six months. Rental value of land for that period was Tk. 42047.33187/ha (Table 5.2).

5.4 Interest on operating capital

Interest on operating capital involved all the costs which farmers were invested in their land. Interest on operating was estimated actually on the average operating costs over the production period. In the study area, interest on operating capital was Tk. 3098.13/ha (Table 5.2).

5.5 Total cost, yield and revenue of pineapple production

In the study area, total cost incurred in pineapple production was Tk. 260038.71/ha. Total variable cost and total fixed cost was Tk. 206542.30/ha and Tk.53496.417/ha. Table 5.3 showed that per hectare yield of pineapple was 11884.83 kg/ha. Total revenue of pineapple in the study area was Tk. 351432.40 ha (table 5.3).

5.6 Gross Revenue and net revenue

Table 5.3 showed that per hectare yield of pineapple was 11884.83 kg/ha. Market value of pineapple production was Tk. 351432.40/ha. Gross return from pineapple was Tk.144890.10/ha. Net return form pineapple was Tk.91393.69 /ha.

Table 5.3: per hectare costs and revenue of pineapple production in Tangail district of Bangladesh

Items	Value
(A) Total costs (Tk./ha)	260038.71
(B)Total variable costs (Tk./ ha)	206542.30
(C) Total fixed costs (Tk./ha)	53496.41
(D) Yield (Kg/Ha)	11884.83
(E) Market value of pineapple (Tk./ha)	351432.40
(F) Gross margin (Tk./ha) (F-B)	144890.10
(G) Net return (Tk./ha) (F-C)	91393.69
(H) Unit price of pineapple (Tk./kg)	29.57
(I) Unit cost of production (Tk./kg)	21.88
(J) BCR on cash cost basis	1.70
(K) BCR on full cost basis	1.35

Source: Farmer's household survey, 2022

5.7 Benefit cost ratio

Benefit cost ratio (BCR) on cash crop basis and full cost basis were 1.70 and 1.35. Benefit cost ratio indicates that pineapple production was profitable in the study area. If pineapple farmers invest Tk. 1 in their land, they got Tk. 1.70 considering cash cost. If pineapple farmers invest Tk. 1 in their land, they got Tk.1.35 considering full cost.

5.8 Conclusion

Pineapple production is a labor intensive enterprise. However, per unit cost of pineapple was Tk. 21.88/kg and per unit price of pineapple was Tk. 29.52/ha. Farmers were very

interested in growing more pineapples in the study area because it was profitable. Finally, it was found in the study area, pineapple production was profitable at current years' yields.

CHAPTER VI

SOCIO-DEMOGRAPHIC CHARACTERISTICS OF PINEAPPLE VALUE CHAIN ACTORS

The socio-demographic background and characteristics of the trader's influences the productions to a great extent. So, a description of the characteristics of trader is necessary for analyzing the main objective of the present study. Socio-demographic characteristics of the trader's included their age, educational status, business type (single ownership or partnership) of the respondent. These are described below:

6.1 Socio-economic condition of traders

6.1.1 Socio-economic condition of Faria

Table 6.1 showed socio-demographic background of Faria. Average age of Faria was 41.26 years. 60.0% of Faria had at least literacy primary education. 66.66% of Faria's business was single ownership and 33.33 was partnership business.

Table 6.1: Socio-economic condition of Faria

Items	Number of Faria	% of Bepari
Age (average)	15	41.26 (years)
Education	9	60.0
Single ownership	10	66.66
Partnership	5	33.33

Source: Market survey, 2022

6.1.2 Socio-economic condition of Bepari

Table 6.2 showed socio-demographic background of Bepari. Average age of Bepari was 39.6 years. 40.0% of Bepari had at least primary education. 80.0% of Bepari's business was single ownership and 20.0% was partnership business.

Table 6.2: Socio-economic condition of Bepari

Items	Number of traders	% of traders
Age	15	39.6
Education	6	40.0
Single ownership	12	80.0
Partnership	3	20.0

Source: Market survey, 2022

6.1.3 Socio-economic condition of Aratdar

Table 6.3 showed socio-demographic background of Aratdar. Average age of Aratdar was 40.86 years. 20.0% of Aratdar had at least primary education. 100.0% of Aratdar's business was single ownership and 0% was partnership business.

Table 6.3: Socio-economic condition of traders (Aratdar)

Items	Number of Aratdar	% of Aratdar
Age	15	40.86
Education	3	20.0
Single ownership	15	100.0
Partnership	-	-

Source: Market survey, 2022

6.1.4 Socio-economic condition of Retailer

Table 6.4 showed socio-demographic background of Retailer. Average age of Retailer was 42.66 years. 6.66% of Retailer had at least primary education. 100% of Retailer's business was single ownership and 0.0% was partnership business.

Table 6.4: Socio-economic condition of Retailers

Items	Number of Retailer	% of Retailer
Age	15	42.66
Education	1	6.66
Single ownership	15	100.0
Partnership	-	-

Source: Market survey, 2022

6.2 Marketing functions of pineapple intermediaries

Marketing functions may be defined as specialized business activities performed in accomplishing the marketing processes of concentration, equalization and dispersion (Kohls and Uhl, 2005). In the study areas, the whole marketing of pineapple has been divided into various functions such as buying and selling, trading, storage, financing, market information and pricing.

6.2.1 Buying and selling

Buying and selling are the major exchange activities of marketing. In buying and selling traders exchange pineapple to other traders with monetary value. Without buying and selling activities the whole process of marketing cannot possible.

6.2.1.1 Buy and sell of pineapple by Faria

Table 6.5 showed the percentage of from whom Farias bought and to who sold pineapple. In the study area, Farias bought pineapple 78.33% from farmers, 13.0% from Beparis and 8.6 % from Aratdars. After buying sold pineapple 10.33% to Beparis, 57.66% to Rratdars, 19.66% to retailers and 13.0% to Customers.

Table 6.5: Buy and sell of pineapple of the Faria

Items	% of traders					
	Farmers	Faria	Bepari	Aratder	Retailer	Customer
Buy	78.33	-	13.0	8.66	-	-
Sell	-	-	10.33	57.66	19.66	13.0

Source: Market survey, 2022

6.2.1.2 Payment method of Faria

Table 6.6 showed payment method of buying and selling activities. Transaction occurred in three methods such as cash, credit and both. 53.33% Faria bought in cash, 7.69% in credit and 40.0% in both. Selling occurred by farias are 40.0% in cash, 26.66% in credit and 33.33% in both. From this it can be said that farias preferred to do this activity in cash.

Table 6.6: Payment method of Bepari

Items	% of traders		
	Cash	Credit	Both
Buy	53.33	7.69	40.0
Sell	40.0	26.66	33.33

Source: Market survey, 2022.

Note: Figure in the parentheses indicates number of traders

6.2.1.3 Buy and sell of pineapple of Bepari

Table 6.7 showed the percentage of from whom Beparis bought and to who sold pineapple. In the study area, Beparis bought pineapple 34.66% from farmers, 31.66% from Farias and 34.33 % from Aratdars. After buying, then they sold pineapple 30.66% to Farias, 39.66% to Aratdars, 25.0% to Retailers and 7.0% to Customers.

Table 6.7: Buy and sell of pineapple of Bepari

Items	% of traders					
	Farmers	Faria	Bepari	Aratder	Retailer	Customer
Buy	34.66	31.66	-	34.33	-	-
Sell	-	30.66	-	39.66	25.0	7.33

Source: Market survey, 2022

6.2.1.4 Payment method of Bepari

Table 6.8 showed payment method of buying and selling activities. Transaction occurred in three methods such as cash, credit and both. 66.66% Beparis buy in cash, 13.33% in credit and 13.33% in both. Selling occurred by Beparis were 53.33% in cash, 13.33% in credit and 33.33% in both. From these statistics it can be said that Farias preferred to do these activities in cash.

Table 6.8: Payment method of Bepari

Items	% of traders		
	Cash	Credit	Both
Buy	66.66	13.33	13.33
Sell	53.33	13.33	33.33

Source: Market survey, 2022

Note: Figure in the parentheses indicates number of traders

6.2.1.5 Buy and sell of pineapple of Arathdar

Table 6.9 showed the percentage of from whom Farias buy and to who sell pineapple. In the study area, Aratdars bought pineapple 25.33% from farmers, 28.0% from Farias and 45.33 % from Beparis and 2.66% from Arathdars. After buying they sold pineapple 44.33% to Beparis, 11.33% to Farias, 33.66% to Retailers and 10.66% to customers.

Table 6.9: Buy and sell of pineapple of the traders (Aratdar)

Items	% of traders					
	Farmers	Faria	Bepari	Aratder	Retailer	Customer
Buy	25.33333	28.0	45.333	2.666667	-	-
Sell	-	11.33333	44.33333	-	33.66667	10.66667

Source: Market survey, 2022

6.2.1.6 Payment method of Aratdar

Table 6.10 showed payment method of buying and selling activities. Transaction had occurred in three methods such as cash, credit and both. 66.66% Aratdars bought in cash, 13.33% in credit and 13.33% in both. Selling occurred by Aratdars were 53.33% in cash, 13.33% in credit and 33.33% in both.

Table 6.10: Payment method of Aratdar

Items	% of traders		
	Cash	Credit	Both
Buy	66.66	13.33	13.33
Sell	53.33	13.33	33.33

Source: Market survey, 2022

Note: Figure in the parentheses indicates number of traders

6.2.1.7 Buy and sell of pineapple of Retailer

Table 6.11 showed the percentage of from whom retailers buy and to whom sell pineapple. In the study area, Retailers bought pineapple 13.0% from farmers, 31.33% from Beparis, 26.33% from Aratdars and 26.33 % from Aratdars. And after buying they sold pineapple 100.0% to customers.

Table 6.11: Buy and sell of pineapple of the Retailers

Items	% of traders					
	Farmers	Faria	Bepari	Aratder	Retailer	Customer
Buy	13.0	32.0	31.33333	26.33333	-	-
Sell	-	-	-	-	-	100.0

Source: Market survey, 2022

6.2.1.8 Payment method of Retailer

Table 6.12 showed payment method of buying and selling activities. Transaction had occurred in three methods such as cash, credit and both. 40.0% Faria bought in cash, 20.0% in credit and 6.6% in both. Selling occurred by retailers are 66.66% in cash, 13.33% in credit and 20% in both. From this statistic it can be said that ferias preferred to do these activities in cash.

Table 6.12: Payment method of traders (retailers)

Items	% of traders		
	Cash	Credit	Both
Buy	40.0	20.0	40.0
Sell	66.66	13.33	20.0

Source: Market survey, 2022.

Note: Figure in the parentheses indicates number of traders

6.2.2 Transportation

Transportation plays an important role in pineapple marketing system. Transportation makes the movement of products between places. Various mode of transportation are used in the study areas. Pineapple is transported from field to markets. In the whole transportation process occurred by van, trolley van, auto van, rickshaw, tractor, truck etc. Farmers generally used auto and auto van for transportation.

6.2.2.1 Transportation modes used by Farias

Table 6.13 showed the percentage of transportation modes used by Farias. 33.33% of Faria used rickshaw, 53.33% of Faria used van, and 53.33% of Faria used auto van, 6.66% of Faria used trolly van, 46.0% of Faria used truck and 20% of Faria used tractor.

Table 6.13: Transportation modes used by Farias

Transportation modes	Number of traders	% of traders
Rickshaw	5	33.33
Van	8	53.33
Auto van	8	53.33
Trolley van	1	6.66
Tractor	3	20.0
Truck	7	46.66

Source: Market survey, 2022

Note: Different traders used multiple modes of transportation

6.2.2.2 Transportation modes used by Beparis

Table 6.14 showed the percentage of transportation modes used by Beparis. 6.66% of Bepari used rickshaw, 33.33%of Bepari used van, 26.66% of Bepari used auto van, 40% of Bepari used trolly van and 33.33% of Bepari used truckor and 53.33% of Bepari used truck.

Table 6.14: Transportation modes used by Beparis

Transportation modes	Number of traders	% of traders
Rickshaw	1	6.66
Van	5	33.33
Auto van	4	26.66
Trolley van	6	40.0
Tractor	5	33.33
Truck	8	53.33

Source: Market survey, 2022

Note: Different traders used multiple modes of transportation

6.2.2.3 Transportation modes used by Aratdars

Table 6.15 showed the percentage of the transportation modes used by Aratdars. 6.66% of Aratdars used rickshaw, 33.33% of Aratdars used van, 26.66% of Aratdars used auto van, 40% of Aratdars used trolly van, 53.33% of Aratdars used truck and 33.33% of Aratdars used tractor.

Table 6.15: Transportation modes used by Aratdars

Transportation modes	Number of traders	% of traders
Rickshaw	4	6.66
Van	10	33.33
Auto van	8	26.66
Trolley van	8	40.0
Tractor	6	33.33
Truck	8	53.33

Source: Market survey, 2022

Note: Different traders used multiple modes of transportation

6.2.2.4 Transportation modes used by Retailers

Table 6.16 showed the percentage of transportation modes used by Retailers. 60% of Retailers used van, 53.33% of retailers used auto van, and 100% of Retailers used trolley van.

Table 6.16: Transportation modes used by Retailers

Transportation modes	Number of traders	% of traders
Rickshaw	-	-
Van	9	60
Auto van	8	53.33
Trolley van	15	100
Tractor	-	-
Truck	-	-

Source: Market survey, 2022.

Note: Different traders used multiple modes of transportation

6.2.3 Market information

Market mechanism depends on market information. For pineapple, market information is crucial. Market information is about price, time and place of sell their product. Sources of market information are market visit, mobile phone, relatives, traders and others.

6.2.3.1 Sources of market information used by Farias

Table 6.17 showed the percentage of Faria's sources of market information. Farias got market information 20.0% from newspapers. 60.0% of Farias used mobile phone, 86.66% of Farias used market visit and the rest 33.33% Farias used information about fellow trades to take market information.

Table 6.17: Sources of market information used Farias

Sources of market information	Number of traders	% of traders
Newspaper	3	20.0
Mobile phone	9	60.0
Market visit	13	86.66
Information from fellow traders	5	33.33

Source: Market survey, 2022.

Note: Different traders used multiple sources of market information

6.2.3.2 Sources of market information used by Beparis

Table 6.18 showed the percentage of Bepari's used sources of market information. Beparis used 33.33% of newspapers, 46.66% of mobile phone, 53.33% of market visit and the rest 60% of information about fellow traders to take market information.

Table 6.18: Sources of market information used by Beparis

Sources of market information	Number of traders	% of traders
Newspaper	5	33.33
Mobile phone	7	46.66
Market visit	8	53.33
Information from fellow traders	9	60.0

Source: Market survey, 2022.

Note: Different traders used multiple sources of market information

6.2.3.3 Sources of market information used by Aratdars

Table 6.19 showed percentage of Aratdar's sources of market information. 26.66% of Aratdars used newspapers, 46.66% of Aratdars used mobile phone, 73.33% of Aratdars used market visit and the rest 66.66% of Aratdars used information about fellow traders to take market information.

Table 6.19: Sources of market information used by Aratdars

Sources of market information	Number of traders	% of traders
Newspaper	4	26.66
Mobile phone	7	46.66
Market visit	11	73.33
Information from fellow traders	10	66.66

Source: Market survey, 2022. Note:

Different traders used multiple sources of market information

6.2.3.4 Sources of market information used by Retailers

Table 6.20 showed percentage of retailer's sources of market information. 40.0% of Retailers used newspapers, 53.0% of retailers used mobile phone, 60.0% used market visit and the rest 80.0% used information about fellow traders to get market information.

Table 6.20: Sources of market information used by the Retailers

Sources of market information	Number of traders	% of traders
Newspaper	6	40.0
Mobile phone	8	53.0
Market visit	12	60.0
Information from fellow traders	9	80.0

Source: Market survey, 2022.

Note: Different traders used multiple sources of market information

6.2.4 Grading

Grading is the basic function of sales transactions and defined as the classification of products according to some standards of measures. (Kohls and Uhl; 2005). Normally pineapples do not need much more grading or sorting. In the study area, sometimes pineapple sell in kg and sometimes it sell in per piece. When sell in per piece then there need to more grading or sorting. They grade it on the basis of size. Sometime they remove extra plant leaf from the fruit. That is another type of grading.

6.2.4.1 Pineapple grading information by different intermediaries

Table 6.21 showed pineapple grading related information by different intermediaries. 26.66% of Farias grade pineapple, 26.66% of Beparis grade pineapple, 33.33% of Aratdars grade pineapple and 40.0% of Retailers grade pineapple.

Table 6.21: Grading practice by different traders

Intermediaries	Grading		% of traders	
	Yes	No	Yes	No
Faria	4	9	26.66	60.0
Bepari	4	11	26.66	73.33
Aratdar	5	10	33.33	66.66
Retailer	6	9	40.0	60.0

Source: Market survey, 2022

6.2.5 Financing

Financing is the most important part for marketing of pineapple. Both the producers and the intermediaries need financing. Of them most of the farmers and traders are self-financed. Other manages their finance from different types of institution by taking loans. They take loan from nearest banks, NGOs, friends and relatives and others.

6.2.5.1 Information about credit sources by Faria

Table 6.22 showed different socio-demographic characteristics of Farias. About 20.0% of Farias took loan for their business. Average amount of loan for farias were Tk. 28333.33 with interest rate 9.0%. Average duration of loan is 9 months.

Table: 6.22 Information about credit sources by Faria

Items	Value
Loan from different sources	
Yes (%)	20.0
No (%)	80.0
Average amount of loan (Tk)	28333.33
Average duration of loan (month)	9.0
Average interest rate (%)	9.0

Source: Market survey, 2022

6.2.5.2 Information about credit sources by Bepari

Table 6.23 showed different socio-demographic characteristics of Beparis. About 13.33% of Beparis took loan for their business. Average amount of loan for Beparis were 40000 Tk with interest rate 12.0%. Average duration of loan is 12 months.

Table 6.23: Information about credit sources by the Bepari

Items	Value
Loan from different sources	
Yes (%)	13.33
No (%)	86.66
Average amount of loan (Tk)	40000
Average duration of loan (month)	12.0
Average interest rate (%)	8.0

Source: Market survey, 2022

6.2.5.3 Information about credit sources by Aratdar

Table 6.24 showed different socio-demographic characteristics of Aratdars. About 13.33% of Aratdars took loan for their business. Average amount of loan for farias were Tk. 37500 with interest rate 9.0%. Average duration of loan is 12.0 months.

Table 6.24: Information about credit sources by the Aratdar

Items	Value
Loan from different sources	
Yes	13.33
No	86.66
Average amount of loan (Tk.)	37500
Average duration of loan (month)	12.0
Average interest rate (%)	9.0

Source: Market survey, 2022

CHAPTER VII

MARKETING COST, MARKETING MARGIN AND MARKETING CHANNEL OF PINEAPPLE VALUE CHAIN ACTORS

7.1 Introduction

In this chapter an attempt has been made to analyze the marketing costs and margins of different intermediaries in the marketing system of pineapple. The study on marketing costs and margins is useful for all persons involved in performing marketing functions. It has a great significance because marketing costs and margin can judge whether or not the services of the intermediaries are provided at reasonable costs.

7.2 Marketing costs

The cost incurred to move the product from producers to consumers is ordinarily known as marketing cost. In other words, the cost of marketing represents the costs of performing various marketing functions (Kohls and Uhl, 2005; p. 96). The marketing costs include costs of all business activities necessary to ascertain the needs and wants of market, plan product availability, effect transfer of ownership of products, provide for physical distribution and facilitate the entire marketing process (Haque, 1996; p. 68) On the basis of collected data marketing costs and margins are discussed below.

7.2.1 Cost and Margin Analysis of Faria

Faria mainly sold pineapple to the Bepari or Aratdar. After collecting pineapple from the growers from the market, they sold it directly to the end user, Bepari or Aratdar.

7.2.1.1 Marketing cost of buying 100 kg of pineapple for Faria

Table 7.1 showed different marketing cost of 100 kg of pineapple in the study area. Among the cost items transportation cost covered the highest cost which was Tk.197.66T. The second highest cost item was shop rent costs which were Tk. 136. Among other cost items, loading, market toll, personal expenses and grading (sorting) were Tk. 83.33, Tk.35.33, Tk.45.33 and Tk. 42.33. And finally total marketing cost of buying 100 kg pineapples were Tk. 540 (Table 7.1).

Table 7.1 Cost of buying 100 kg pineapple for Faria

Cost items	Taka
Transportation	197.66
Loading	83.33
Market toll	35.33
Personal expense	45.33
Rent of shop	136.0
Sorting	42.33
Total	540.0

Source: Market survey, 2022

7.2.1.2 Marketing cost of selling 100 kg of pineapple for Faria

Table 7.2 showed the marketing cost of selling 100kg pineapple for Faria. Among the cost i tems transportation cost covered the second highest cost which was Tk.98.33. The highest cost item was unloading costs which were Tk. 103.33. Among other cost items, labor cost, entertainment, personal costs were Tk. 48.93, Tk. 35 and Tk. 34.8 respectively. Finally, total marketing costs of selling 100 kg of pineapples by the Faria were Tk. 321 (Table 7.2).

Table 7.2 marketing cost of selling 100 kg pineapple for Faria

Cost items	Taka
Transportation	98.83
Unloading	103.33
Labor	48.93
Entertainment	35.33
Personal expense	34.8
Total	321.23

Source: Market survey, 2022

7.3 Marketing margin (Value addition)

Marketing margin at a particular stage of transaction may be defined as the difference between purchase price and sales price of commodity. Total marketing margin is obtained by the deducting the price received by the producers from the price paid by the price by the customers. According to kohls and Uhl (2005), marketing margin is a sense, is the price of all utility adding activities and functions that are performed by the intermediaries. The marketing margin must cover the costs involved in transferring produce from one stage to next and provide a reasonable return to those doing the marketing activities. (Crawford, 1997; p. 262).

7.3.1 Value addition by Farias

The average purchase price per 100 kg of pineapple was Tk. 2316.66 and sales price was Tk. 3500.0 respectively. Total marketing cost was Tk. 861.23. The amount of marketing margin per 100 kg of pineapple was Tk. 322.107.

Table 7.3 Value addition of 100 kg pineapple of Farias

Items	Taka
Marketing cost of buying 100 kg pineapple (a)	540.0
Marketing cost of selling 100 kg pineapple (b)	321.23
Total marketing cost of traders (a + b)	861.23
Buying cost of 100 kg pineapple (c)	2316.66
Revenue from selling 100 kg pineapple (d)	3500.0
Marketing margin (d –c)	1183.34
Net marketing margin (d-c-a-b)	322.10

Source: Market survey, 2022

7.2.2 Cost and Margin Analysis of Beparis

Bepari mainly sold pineapple to the Aratdar and wholesale market. After collecting pineapple from the growers and Faria, they sold it directly to the Aratdar.

7.2.2.1 Marketing cost of buying 100 kg of pineapple for Beparis

Table 7.4 showed the marketing cost of buying 100kg pineapples for Beparis. Among the cost items transportation covered the highest costs which were Tk.126. The second highest cost items are average loading costs that was Tk.111.93. Among other cost items, market toll, personal expenses and grading (sorting) were Tk.53.33, Tk. 48.66Tk, Tk. 45.33 and Tk. 43.73 Tk. Finally, total marketing cost of buying 100 kg pineapples were Tk. 510.99 (Table 7.4).

Table 7.4 Marketing cost of buying 100 kg pineapple for Bepari

Cost items	Taka
Transportation	126.0
Loading	111.93
Market toll	53.33
Personal expense	48.66
Rent of shop	127.33
Sorting	43.73
Total	510.99

Source: Market survey, 2022

7.2.2.2 Marketing cost of selling 100 kg of pineapple for Beparis

Table 7.4 showed the marketing cost of selling 100 kg of pineapple for Beparis. Among the cost items transportation cost covered the second highest cost which is Tk.72.16. The highest cost item was unloading costs which were Tk. 87. Among other cost items, labor cost, entertainment, personal costs were Tk. 56.86, Tk. 38 and Tk. 62.33 respectively. Total marketing cost for selling per 100kg of pineapple incurred by the Beparis was Tk. 316.36 (Table 7.5).

Table 7.5 marketing cost of selling 100 kg pineapple for Bepari

Cost items	Taka
Transportation	72.16
Unloading	87.0
Labor	56.86
Entertainment	38.0
Personal expense	62.33
Total	316.36

Source: Market survey, 2022

7.3.1 Value addition by Beparis

The average purchase price per 100 kg of pineapple was Tk. 2673.33 and sales price was Tk. 3683.33 respectively. Total marketing cost was Tk. 827.65. The amount of marketing margin per 100 kg of pineapple was Tk. 182.35 for Beparis (Table 7.6).

Table 7.6 Value addition of 100 kg pineapple for Bepari

Items	Taka
Marketing cost of buying 100 kg pineapple (a)	510.99
Marketing cost of selling 100 kg pineapple (b)	316.36
Total marketing cost of traders (a + b)	827.65
Buying cost of 100 kg pineapple (c)	2673.33
Revenue from selling 100 kg pineapple (d)	3683.33
Marketing margin (d –c)	1010.0
Net marketing margin (d-c-a-b)	182.35

Source: Market survey, 2022

7.4.1 Cost and Margin Analysis of Aratdar

Aratdar mainly sold pineapple to the local market wholesalers and retailers in the market. After collecting pineapple from the Faria and Bepari, they sold it directly to the end wholesaler.

7.4.1.1 Marketing cost of buying 100 kg of pineapple for Aratdar

Table 7.7 showed the marketing cost of buying 100 kg of pineapple for Aratdar. Among the cost items transportation cost covered the highest cost which was Tk.156.66. The second highest cost item was shop rent costs which were Tk. 122. Among other cost items, loading, market toll, personal expenses and grading (sorting) were 111.33 TK, Tk.52.33, Tk. 50.33. and Tk. 43.66 respectively. The estimated average marketing cost of buying per 100kg of pineapple incurred by the Aratdar was Tk. 536.31.

Table 7.7 Marketing cost of buying 100 kg pineapple for Aratdar

Cost items	Taka
Transportation	156.66
Loading	111.33
Market toll	52.33
Personal expense	50.33
Rent of shop	122.0
Sorting	43.66
Total	536.31

Source: Market survey, 2022

7.2.2.2 Marketing cost of selling 100 kg of pineapple for Aratdar

Table 7.8 showed the marketing cost of selling 100 kg of pineapple for Aratdar. Among the cost items transportation cost covered the highest cost which was 92.63Tk. The second highest cost item was unloading costs which were 59.66Tk. Among other cost items, labor cost, entertainment, personal costs were Tk. 63.66, Tk. 26 and Tk.37 respectively. Total marketing cost for selling per 100kg of pineapple incurred by the Arathdar was Tk. 278.95.

Table 7.8 marketing cost of selling 100 kg pineapple for Aratdar

Cost items	Taka
Transportation	92.63
Unloading	59.66
Labor	63.66
Entertainment	26.0
Personal expense	37.0
Total	278.95

Source: Market survey, 2022

7.3.1 Value addition by Aratdar

The average purchase price per 100 kg of pineapple was Tk. 3980 and sales price was Tk. 4926.66 respectively. Total marketing cost was Tk. 815.26. The amount of marketing margin per 100 kg of pineapple was Tk. 131.4 for Aratdars.

Table 7.9 Value addition of 100 kg pineapple for Aratdar

Items	Taka
Marketing cost of buying 100 kg pineapple (a)	536.31
Marketing cost of selling 100 kg pineapple (b)	278.95
Total marketing cost of traders (a + b)	815.26
Buying cost of 100 kg pineapple (c)	3980.0
Revenue from selling 100 kg pineapple (d)	4926.66
Marketing margin (d-c)	946.66
Net marketing margin (d-c-a-b)	131.4

Source: Market survey, 2022

7.3.1.1 Cost and Margin Analysis of Retailer

Retailers mainly sold pineapple to the ultimate consumers. After collecting pineapple from the district wholesale market and they sold it directly to the end users.

7.3.1.1 Marketing cost of buying 100 kg of pineapple for Retailer

Table 7.10 showed marketing cost of buying 100 kg pineapple for retailer. Among the cost items transportation cost covered the highest cost which was Tk.164.66 among other cost items, loading, market toll, personal expenses and grading (sorting) were Tk.79.8, Tk. 53.66, Tk. 47.33 and Tk. 20.33 respectively. Total marketing cost of buying per 100kg of pineapple incurred by the retailer was Tk. 365.78.

Table 7.10 Marketing cost of buying 100 kg pineapple for Retailer

Cost items	Taka
Transportation	164.66
Loading	79.8
Market toll	53.66
Personal expense	47.33
Rent of shop	-
Sorting	20.33
Total	365.78

Source: Market survey, 2022

7.3.2.1 Marketing cost of selling 100 kg of pineapple for Retailers

The estimated average marketing cost for selling per 100 kg of pineapple incurred by the Retailer was Tk. 220.7. Among other cost items, transportation cost, unloading cost, entertainment, personal costs were Tk. 94.16, Tk. 67.06, Tk. 13.46 and Tk. 25.66 respectively.

Table 7.11 marketing cost of selling 100 kg pineapple for Retailer

Cost items	Taka
Transportation	94.16
Unloading	67.06
Labor	-
Entertainment	13.46
Personal expense	25.66
Total	220.7

Source: Market survey, 2022

7.3.2.3 Value addition by Retailers

The average purchase price per 100 kg of pineapple was Tk. 4670.0 and sales price was Tk. 5600.0 respectively. Total marketing cost was Tk. 566.16. The amount of marketing margin per 100 kg of pineapple was Tk. 363.84 for Retailers.

Table 7.12 Value addition of 100 kg pineapple of Retailer

Items	Taka
Marketing cost of buying 100 kg pineapple (a)	365.78
Marketing cost of selling 100 kg pineapple (b)	220.7
Total marketing cost of traders (a + b)	566.16
Buying cost of 100 kg pineapple (c)	4670.0
Revenue from selling 100 kg pineapple (d)	5600.0
Marketing margin (d –c-a-b)	363.84

Source: Market survey, 2022

7.4 Marketing channel:

The value chain analysis is one of the important topics in the field of marketing. Almost every agricultural product goes to the ultimate users or final consumers through some successive value addition by different value adding actors. In recent years, a few research works have been done on value chain aspect of pineapple in the country (Baruwa 2013, Hamjah 2014, Hossain et al. 2015, Rahman 2016). A marketing channel consists of the people, organizations, and activities necessary to transfer the ownership of goods from the point of production to the point of consumption. In pineapple marketing channel, participants were Farmers, Faria, Bepari, Aratdar and retailers.

7.4.1 Marketing channel of pineapple and different value chain actor for pineapple marketing

The thesis identified marketing channels or routes in the study area through which pineapple moved from the point of initial production to the point of selling. In the

marketing process, pineapple move through different levels of actors. The participants in the marketing system such as traders of pineapple were Faria, Bepari, Aratdar, and Retailer.

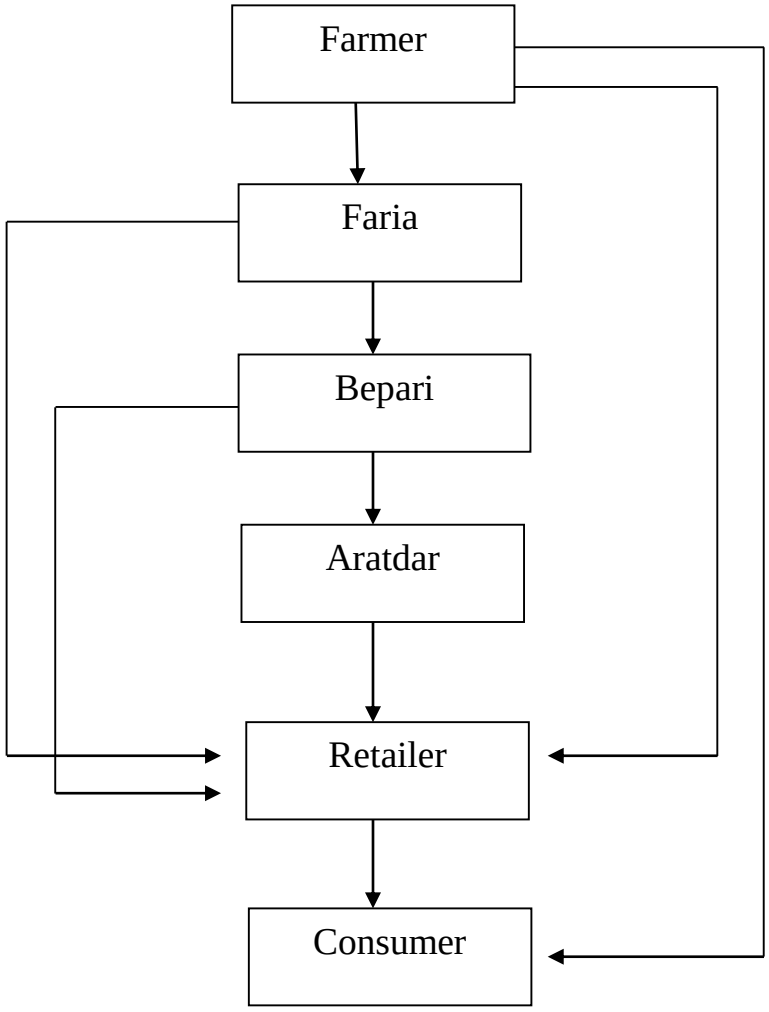

Fig 7.2: Marketing channel of pineapple

The existing marketing channel in the study area

Channel 1: Farmer→ Consumer

Channel 2: Farmer→ Retailer→ Consumer

Channel 3: Farmer→ Faria→ Retailer→ Consumer

Channel 4: Farmer→ Faria→ Bepari→ Retailer→ Consumer

Channel 5: Farmer→ Faria→ Bepari→ Aratdar→ Retailer→ Consumer

7.5 Market actors of pineapple in the study area

7.5.1 Producer

Producers are the first actor from where marketing channel started. There are different types of farmers such as small, medium and large farmers. Small farmers sell their most of the fruit directly to the buyers or nearest village market. Medium producer sell their pineapple to the intermediaries in the market. In the study area, the intermediaries come from whole country buy pineapple from large farmers. Some producers are found in the study areas who sell pineapple directly to the buyer.

7.5.2 Faria

Farias purchase loose pineapple in small quantities from farmers and others dealers. They sell unsorted pineapple to the Beparis and other middleman who usually deal with large volume. Generally, Farias do not have adequate storage facilities so that they sell their pineapple immediately. They store pineapple for a short period.

7.5.3 Bepari

They are the traders who handle (buy and sell) pineapple professionally. Beparis are the large traders who have fixed shop or place. They take part in wholesale market. They usually buy pineapple from producer and Faria in a large volume and sell directly to the Aratdar. They spent most of their time in the market.

7.5.4 Aratdar

The Aratdar are the actor who play important role in pineapple marketing system. In the marketing channel of pineapple, Aratdars are the persons who owns a warehouse, more specially, a commission agent for stocking and selling different kinds of agricultural goods. They work for small businessmen and traders. They often serve as a source of financing and provide storage facilities. Aratdar receive commission from other traders and some exporters.

7.5.5 Retailer

Retailers are the intermediaries who sell goods to the ultimate consumer in relatively small quantities for use or consumption rather than for resale. They buy pineapple from other intermediaries like Beparis, etc. Sometime they also buy pineapple from directly producer. Retailers sell their product nearly to the market in the production area. They buy loose quantity of product from the intermediaries as well as also sold loose quantities to the consumers.

CHAPTER VIII

COST EFFICIENCY OF PINEAPPLE PRODUCER BY STOCASTIC COST FRONTIER MODEL

8.1 Introduction

Efficiency is an important issue of productivity growth in the agriculture based economy of developing countries. The estimation of efficiency with the help of production function has been popular area of applied econometrics. Recent works in duality theory which has linked production and cost function has made this more attractive. However, definition of a production function is given in terms of the maximum output attainable at given level of inputs and that of a cost functions gives the minimum cost of producing a given level of output at same set of input prices. Modeling production and cost frontier and their empirical estimation for studying productive efficiency of pineapple farmers in Bangladesh could be benefitted to a great extent from such studies. Estimates on the extent of efficiency may help improve productivity through input reallocation or cost minimization. The main objective of this chapter is to estimate the cost or economic efficiency.

8.2 The Parameters Estimation of cost Efficiency

The economic efficiencies were estimated for the aggregate situation with the help of derived normalized cost functions by maximum likelihood estimate (MLE) method using a computer software, FRONTIER 4.1 (Coelli, 1996). The output of the FRONTIER 4.1 program provided the estimates of coefficients as well as other variance parameters such as sigma squared ($\sigma 2$), gamma (γ) and log likelihood function. The stochastic frontier cost function with production cost as dependent variable was estimated for generating farm specific economic efficiency indices for pineapple production in the study areas in which all independent input variables were normalized by seedling/ saker price rate. The ML estimates of the coefficients of stochastic Cobb- Douglas cost frontier and economic inefficiency effect model which show the minimal cost performance are presented in Table 8.2. It may be, however, ML estimates were checked for multicollinearity and no problem was noted in any case.

In this analysis the cost frontier was normalized by the pineapple saker price rate. So, it was excluded from the model.

8.2.1 Constant or intercept term

The value of constant represents the composite impact of all other influencing variables that are excluded from the model.

8.2.2 TSP cost

The coefficient of Triple super phosphate (0.103) was positive and significant at 1 percent level. This result implied that TSP cost had positive significant impact on the total cost of pineapple production. If farmers increase the use of TSP, it will increase the TSP cost and the result in the corresponding increase of cost of producing pineapple.

8.2.3 Insecticide cost

The coefficient of insecticide (0.061) was positive and significant at 1 percent level. This result implied that insecticide cost had positive significant impact on the total cost of pineapple production. If farmers increase the use of insecticide, it will increase the insecticide cost and the result in the corresponding increase of cost of producing pineapple.

8.2.4 Land rent

The coefficient of land rent (0.174) was positive and significant at 1 percent level. This result implied that land rent cost had positive significant impact on the total cost of pineapple production. If farmers increase the use of land, it will increase the land rent cost and the result in the corresponding increase of cost of producing pineapple.

8.2.5 Production

The coefficient of production (0.103) was positive and significant at 1 percent level. This result implied that total production had positive significant impact on the total cost of pineapple production. If farmers increase the production, then total cost of production will increase.

8.3 Cost inefficiency effect model

The estimates of farm specific variables which were responsible for economic inefficiency are discussed below.

8.3.1 Age

The coefficient of farmers' age (0.086) was found to be positive and significant at 5 percent level in the cost inefficiency effect model for pineapple production. Farmer's age had positive significant impact on cost inefficiency of pineapple production. The positive coefficient of farmers' age in the cost inefficiency effect model indicated that the cost inefficiency increases with the increase in age of farmers. It may also be concluded that farmers with higher age tended to have higher cost inefficiency than farmers with younger age. That is, younger farmers were more cost efficient than elderly farmers. This was because of older farmers were less likely to have contact with extension agents and were less willing to adopt new practices and modern inputs. Furthermore, younger farmers were likely to have some formal education and therefore might be more successful in gathering information and understanding new practices, which in turn would improve their cost efficiency.

8.3.2 Farming experience

The coefficient of farmers' years of experience (-0.163) was found negative and significant at 10 percent level. This result implied that farmer's years of farming experience had negative significant impact on the cost inefficiency of pineapple production. Cost inefficiency decreases with the increase in farmers' years of farming experience. That is, farmers with higher farming experience were more cost efficient than farmers had lower farming experience.

Table 8.1 Maximum Likelihood Estimates of the Stochastic Cobb-Douglas Frontier Production Function and Cost Efficiency Effect Model for pineapple Production

Independent variable	Parameter	Co-efficient	Standard error	p value
Stochastic cost frontier				
Constant	α_0	3.21	0.692	0.000
Ln family wage (Tk. / day)	α_1	0.013	0.139	0.922
Ln hired wage (Tk. / day)	α_2	-0.186***	0.054	0.001
Ln pt (Power tiller cost)	α_3	-0.041	0.062	0.501
Ln urea cost (Tk. / kg)	α_4	-0.038	0.058	0.509
Ln TSP cost (Tk. / kg)	α_5	0.103***	0.013	0.000
Ln Muriate of potash cost (Tk. /kg)	α_6	0.055	0.055	0.314
Ln gypsum cost (Tk. /kg)	α_7	0.007	0.077	0.925
Ln manure cost (Tk. /kg)	α_8	0.005	0.018	0.763
Ln pesticide cost (Tk. /kg)	α_9	0.039	0.069	0.564
Ln insecticide cost (Tk. /ha)	α_{10}	0.061***	0.021	0.005
Ln land (Tk. /ha)	α_{11}	0.174***	0.023	0.000
Ln production (Tk. /ha)	α_{12}	0.759***	0.114	0.000
Cost inefficiency effect model				
Constant	δ_0	-8.52	1.77	0.000
Ln Age (Years)	δ_1	0.086**	0.043	0.047
Ln household size (person/ha)	δ_2	0.033	0.147	0.822
Access to TV Dummy variable (1= have access, 0= no access)	δ_3	0.913	0.741	0.218
Ln farming experience (years)	δ_4	-0.163*	0.087	0.062
Diagnostic statistics				
Log likelihood		158.98		
Sigma v	σ_v	0.048		
Sigma u	σ_u	0.046		
Wald chi^2		1096.21		
Probability of chi^2		0.000		
Number of observation		100		

Note: ***, ** and * indicates significance at the 1%, 5% and 10% levels respectively

Table 8.2 Cost efficiency Estimates of pineapple Producers

Items	Value
Mean cost efficiency	.964
Maximum cost efficiency	.997
Minimum cost efficiency	.594
Standard deviation	.0455

8.4 Cost efficiency estimate

The mean cost efficiency for overall farmers were 0.964 with a range from 0.594 to 0.997 and standard deviation of 0.455 for pineapple production. The percentage distribution of pineapple farmers' efficiencies indicates that the cost efficiencies range from 0l594 to 0.997 with an average cost efficiency of 0.964. This means that if a farmer were to reach at production efficiency level of its most efficient farmer, then on an average the farmers could experience a cost saving of 3.4%. i.e. $\left[1 - \left(\frac{.964}{.997}\right) \times 100\right]$

$$= (1 - 0.966) \times 100$$

$$= 0.34 \times 100$$

$$= 3.4$$

And the most inefficient farmer suggested a gain of 40.5% in cost efficiency

i.e. $\left[1 - \left(\frac{.594}{.0997}\right) \times 100\right]$

$= (1 - 0.966) \times 100$

$= 0.405 \times 100$

$= 40.5$

Most inefficient farmer minimizes cost 40.5% by the efficient use of inputs and gets the same level of output. There is a scope to reduce cost of pineapple production in the study area without hampering the output.

CHAPTER IX

PROBLEMS AND SUGGESTIONS OF PINEAPPLE PRODUCTION AND MARKETING

9.1 Introduction

Problems faced by the farmers in producing pineapple. Various problems are associated with this sector. Experience has shown that farmers in Bangladesh seldom get the required quantity of seeds, adequate fund, fertilizers, pesticides, technical support and finally the remunerative price of their produces. They are economically not very capable of investing the required fund for producing crops due to their low capital base and scarcity of cash fund. In this chapter an attempt is made to identify some major problems of pineapple production. Some problems were in fact more severe than others Different problems were ranked in the study area. The problems are inadequate capital, high price of labor, infestation of pest and disease, unavailability of high price of input, lack of credit facility, lack of availability of fertilizer, seedling problem etc. However, those problems and constraints which the farmers emphasized upon are shown in Table 7.1 and described below:

9.2 Problems faced by producers

9.2.1 Inadequate capital

In the study area, most of the farmers reported that they did not have adequate amount of operating capital. Some farmers want to produce pineapple. But lack of capital they cannot produce in the Study area. This is the 4^{th} ranked problem in case of pineapple production in the study area. Table 9.1 showed that 52% farmers faced inadequate capital problem in the study area.

9.2.2 High price of labor

In the study area, most of the farmers could not get labor in time. So they had to depend on family supplied labor otherwise have to pay more for labor. This was also a serious problem

which ranked 7th of all problems found in the study area. About 32% of farmers faced high price of labor problem in the study area (Table 9.1).

9.2.3 Infestation of pest and disease

For pineapple production diseases and pest infestation was one of the severe problems. 21% farmers faced infestation of pest and disease related problem in the study area (Table 9.1).

9.2.4 Unavailability and high price of input

In the study area, unavailability input is common problem. In Pineapple production input includes fertilizers, Power tiller, insecticides, pesticides etc. 28.0% of farmers faced unavailability and high price of input related problem in the study area. This is the 8th ranked of all problems found in the study area.

9.2.5 Lack of credit facility

Pineapple production needs huge amount of credit. But farmers do not get loan easily from bank or from any other financial institutions. That's why lacked of credit facility is one of the most common problem in pineapple production. This problem is 3rd ranked of all problems found in the study area. 57.0% farmers faced credit related problem in the study area.

9.2.6 Seedling Problem

In Study area, farmers purchased disease affected seedlings. This is 5th ranked of all problems found in Tangail district of Madhupur Upazilla. 40.0% farmers mentioned this problem.

9.2.7 Perishability

Pineapple is a perishable in nature, so it is the most common problems of pineapple production. If prices decrease, then they have to sell their produce in low price because of perishability. So, most of the farmers said that it was the major problem of pineapple

production. Most of the time, they sell their produce within a day. 60.0% farmers mentioned this problem.

Table 9.1: Problem faced by Pineapple Farmers

Problems	Percentage (%) of producer
Inadequate capital	52.0
High price of labor	31.0
Infestation of pest and disease	21.0
Unavailability and high price of input	28.0
Lack of credit facility	57.0
Lack of availability of fertilizer	35.0
Seedling problem	40.0
Perishability	64.0
Lack of training	80.0

Source: Farmer's household survey, 2022

9.2.8 Lack of training

In the study area, the 100% of farmer said that they have no scientific knowledge about pineapple production. They produce it by their general knowledge earned from inheritance. They did not get any training, that's why lack of scientific knowledge exist in the study area which ranked 1st among all problems.

9.3 Solution suggested by the farmers

To overcome the problem of pineapple production and make it more profitable, the farmers of the study are asked to suggest some solution to the problems. Farmers gave some suggestions to solve their problems (Table 9.2).

Table 9.2: Solutions to the problems suggested by the farmers

Solution	Percentage (%) of producer
Available capital	61.0
Need to reduce insecticide price	50.0
Need good quality stem/seedling	35.0
Need more land	12.0
Available storage facility	70.0
Availability of intermediaries to sell	34.0
Need more scientific knowledge	85.0
Need more training	55.0
Available credit	40.0

Source: Farmer's household survey, 2022

9.3.1 Available capital

Farmers said that their major problem was related to capital. In pineapple production, they need a lot amount of capital because input costs were high. So, it should be solved by making available capital for pineapple production. 61.0% of farmers mentioned this suggestion.

9.3.2 Need to reduce insecticide price and availability of insecticide and pesticide

For pineapple production insecticides and pesticides are essential to control pest and insect attract. Quality insecticides and pesticides are not available in market during production period and price was also high. So, it is needed to reduce price of insecticide and pesticide and make available. 50% of the farmers mentioned this problem.

9.3.3 Need good quality seedling

Quality seed ensure expected production. In the study area farmers faced quality seed crisis in the production period. Most of the farmers suggested for it because they could not collect quality seedling from the dealer and they had to collect poor seedling from the local market.

So quality seedling has to provide to farmers thorough different Channels. 35% of the farmers mentioned this suggestion.

9.3.4 Availability of intermediaries to sell

Farmers sell their produce to the intermediaries. If intermediaries are less in number in the market, then farmers face a serious problem. They cannot sell pineapple properly. That's why there in study area needed availability of intermediaries to sell. 34% of the farmers mentioned this suggestion.

9.3.5 Need more training

Farmers have no scientific knowledge in pineapple production. By increasing training facilities in the study area, this situation can be improved. 85% of the farmers mentioned this suggestion.

9.3.6 Available credit

There have no easy bank credit facilities for pineapple cultivator. Bangladesh bank should take necessary steps for providing credit subsidy facilities for pineapple farmers. Bank should lessen complexity of taking credit for pineapple production. 40% of the farmers mentioned this suggestion.

9.4 Problems of pineapple marketing

9.4.1 Introduction:

Farmers produce pineapple for the market. They sell it to the nearest markets. Farmers and different types of intermediaries such as Faria, Bepari, Aratdar, and Retailer etc are involved in the marketing of pineapple. They have faced a lot of problem during selling and marketing of pineapple. In this chapter, I will try to identify pineapple marketing related problems and solution mentioned by value chain actors.

9.4.2 Faria's marketing problem

9.4.2.1 Inadequate capital

For any business, capital is the most important thing. The traders of the study area had capital constraints. For cultivation of pineapple, a huge amount of cash money was needed to purchase various inputs like, human labor, sucker, fertilizers, pesticides, etc. So, for traders, buying price and marketing cost were also high. That's why traders need adequate capital for business. 53.33% of Faria mentioned this problem.

9.4.2.2 Unstable price

Most of the sample traders reported that unstable price was a major problem in pineapple marketing. This is the top ranked marketing problem which is faced by the Farias. Due to covid outbreak, they faced unstable price problem. 90% of Faria mentioned this problem.

9.4.2.3 Higher Transportation Cost

Transportation cost was very high in the study area. The primary and secondary markets were not connected to the villages. Due to high transportation cost and poor communication facilities, the Farias were bound to sell pineapple in local markets at low prices. 40% of Faria mentioned this problem.

9.4.2.4 Inadequate storage

Traders complained that huge amount of Pineapple was spoiled due to lack of proper storage facilities. 33.33% of Faria mentioned this problem.

9.4.2.5 High rent of shop

In the study area, some big traders like Beparis and Aratdars have shop in the market for selling their pineapple. They also reported that the rent of shop was very high. 40.0% of Faria mentioned this problem.

9.4.2.6 High tips and donation

Most of the Faria in the study area reported about market syndicate. Because of syndicate they had to pay tips and donation for their business. The amount of tips and donation was so high in the study area. 33.33% of Faria mentioned this problem.

9.4.2.7 Delay payment

In the study area, Faria reported that they do their financial activities not only in cash but also in credit. In case of credit facilities, they have faced a serious problem that is delay payment. Other intermediaries bought pineapple from them in credit. But they do not keep their promise. 20.0% of Faria mentioned this problem.

Table 9.3: Marketing problems mentioned by Farias

Problems	Number of Faria	% of Faria
Inadequate capital	8	53.33
Unstable price of pineapple	4	90.0
High transportation cost	6	40.0
Inadequate storage	5	33.33
Lack of information	11	73.33
High rent of shop	7	40.0
High tips and donation	5	33.33
Lack of credit	10	66.66
Delay payment	3	20.0

Source: Market survey, 2022

9.4.3 Marketing problems mentioned by the Bepari

Table 9.4 showed percentage of marketing problems for Beparis. Among the problems, lack of credit was highest problem which was 66.66% in the study area. High tips and donation was the second highest problems among the farias that was 60%. 40% of the Beparis faced inadequate capital problem. 46.46% of Beparis mentioned high transportation cost related problem. 40%, 53.33% of Beparis faced inadequate storage and

high rent of shop related problem respectively. 33.33% Bepari mentioned high tips and donation. 53.33% Bepari mentioned delay payment related problem.

Table 9.4: Marketing problems mentioned by Beparis

Problems	Number of traders	% of traders
Inadequate capital	6	40.0
Unstable price of pineapple	5	60.0
High transportation cost	7	46.66
Inadequate storage	6	40.0
Lack of information	8	53.33
High rent of shop	7	46.66
High tips and donation	8	33.33
Lack of credit	10	66.66
Delay payment	8	53.33

Source: Market survey, 2022

9.4.4 Marketing problems mentioned by the Aratdars

Table 9.5 showed percentage of marketing problems for Aratdars. Among the problems, lack of information was second highest problem which was 60% in the study area for Aratdar. High rent of shop was the highest problems mentioned by Aratdar that was 80%. 40% of Aratdar mentioned the problem of inadequate capital. 33.33% of Aratdar mention the problem of inadequate storage. 40% Aratdar faced inadequate storage and high tips and donation related problem. 66.66% of Aratdar mentioned the problems of delay payment.

Table 9.5: Marketing problems mentioned by the Aratdars

Problems	Number of Aratdar	% of Aratdar
Inadequate capital	6	40.0
Unstable price of pineapple	7	46.66
High transportation cost	5	33.33
Inadequate storage	6	40.0
Lack of information	9	60.0
High rent of shop	12	80.0
High tips and donation	6	40.0
Lack of credit	8	53.33
Delay payment	10	66.66

Source: Market survey, 2022

9.4.5 Marketing problems mentioned by the Retailer

Table 9.6 showed percentage of marketing problems for retailers. Among the problems, lack of information was the highest problem which was 90% mentioned by retailer in the study area. Lack of credit and unstable price of pineapple were the second highest problems faced the retailers. 40% of Retailer mentioned the problem of inadequate capital. 33.33% of retailer mentioned the problem of high transportation cost. 40% of the retailer mentioned inadequate storage related problem. 53.33% of the retailer mentioned delay payment related problem.

Table 9.6: Marketing problems mentioned by Retailers

Problems	Number of Retailer	% of Retailer
Inadequate capital	6	40.0
Unstable price of pineapple	9	60.0
High transportation cost	5	33.33
Inadequate storage	6	40.0
Lack of information	12	80.0
High rent of shop	8	53.33
High tips and donation	7	46.66
Lack of credit	9	60.0
Delay payment	8	53.33

Source: Market survey, 2022

9.5 Solution suggested by the traders

9.5.1 Solution suggested by Faria

To overcome the problem of pineapple traders and make it more profitable, the traders of the study were asked to suggest some solution to the problems. In the study area, the traders were given freedom to give their suggestion for overcoming the existing problems related to the pineapple business.

9.5.1.1 Ensuring easy access to institutional credit (through bank and NGOs)

Faria need credit facility and easy payment scheme. That's why pineapple traders need financial credit with low interest rate. 60.0% Faria suggested to ensuring credit facility to them from different sources.

9.5.1.2 Available market facility

In the study area, traders said that market facilities of pineapple market were so poor. So, they suggested improving market facilities. 53.33% of Faria suggested to making available market facilities.

9.5.1.3 Increase storage

Pineapple is a perishable in nature, so it needs adequate storage facilities. In the study area, 33.33% of Faria suggested this measure.

9.5.1.4 Need to reduce transportation cost

In the study area, most of the Farias claimed about unavailability and higher transportation cost. For buying and selling transportation was must. So, Farias in the study area suggested for reducing transportation cost and making transportation available. 40.0% of Farias suggested this measure.

9.5.1.5 Available information

Information about location of the market, price of the product is very important for any business. For pineapple Farias it is essential to know the current price of pineapple and other business related information. 26.66% of Faria suggested this solution.

9.5.6 Providing technical knowledge about grading

If traders grade pineapple properly then they can get suitable price for their product and earned more profit. Government and non-government organization can provide proper trainings for traders. As a result, they are able to grade pineapple proper ways. 33.33% of Farias suggested this measure.

9.5.7 Ensuring stable price

Stable price is a very important criterion for running business smoothly. Most of the traders in the study areas suggested these measures to be taken. 46.66% of Farias suggested this measure.

Table 9.7: Possible suggestion suggested by Faria

Solution	Number of Faria	% of Faria
Ensure credit facilities	9	60.0
Available market facility	8	53.33
Increase storage	5	33.33
Need market facility	8	53.33
Need transportation	9	40.0
Ensuring stable price	7	46.66
Available information	4	26.66
Provide technical knowledge about grading	5	33.33

Source: Market survey, 2022

9.5.2 Solution suggested by Bepari

Table 9.8 showed possible suggestion suggested by Bepari. Available credit facilities are the highest suggested measures that suggested by most of the farias was (86.66%). 46.66% Bepari suggested to make available market facilities. 53.33% Beparis suggested increase storage and ensuring stable price related measure. 66.66% of Beparis suggested market facilities related measure. 40.0% of Bepari suggested need transportation related measure.46.66% Of Beparis suggested to provide technical knowledge about grading.

Table 9.8: Possible suggestion suggested by Bepari

Solution	Number of Bepari	% of Bepari
Available credit	13	86.66
Available market facility	7	46.66
Increase storage	8	53.33
Need market facility	10	66.66
Need transportation	6	40.0
Ensuring stable price	8	53.33
Available information	9	60.0
Provide technical knowledge about grading	7	46.66

Source: Market survey, 2022

9.5.3 Solution suggested by Aratdar

Table 9.9 showed possible suggestions suggested by Aratdar. Available credit facilities were the highest suggested measures that suggested by most of the aratdars (100%). Available market facilities were suggested by 80.0% of Aratdar. 46.66% of Aratdar suggested increase storage, ensuring stable price, technical knowledge about grading related measure. 60.0% of Aratdar suggested improving market facilities related measure.

Table 9.9: Possible suggestion suggested by Aratdar

Solution	Number of Aratdar	% of Aratdar
Available credit	15	100
Available market facility	12	80.0
Increase storage	7	46.66
Need market facility	9	60.0
Need transportation	6	40.0
Ensuring stable price	7	46.66
Available information	8	53.33
Provide technical knowledge about grading	7	46.66

Source: Market survey, 2022

9.5.4 Solution suggested by Retailer

Table showed possible suggestion suggested by Retailers. Available information were the highest suggested measures that suggested by most of the retailers (66.66%). 60% of Retailer mentioned available market facilities related measures. 53.33% of Retailer suggested providing technical knowledge, ensuring stable price related measures. 40.0% of retailer suggested to increase storage. 20.0% of retailer mentioned about transportation related measure. Available credit facilities were another measure which was suggested by 66. 66% of retailer.

Table 9.10: Possible suggestion suggested by Retailer

Solution	Number of Aratdar	% of Aratdar
Available credit	10	66.66
Available market facility	9	60.0
Increase storage	6	40.0
Need market facility	7	46.66
Need transportation	3	20.0
Ensuring stable price	8	53.33
Available information	12	80.0
Provide technical knowledge about grading	8	53.33

Source: Market survey, 2022

CHAPTER X

SUMMARY, CONCLUSION AND RECOMMENDATIONS

10.1 Introduction

This chapter focuses on the summary in the light of the discussions made in the earlier chapters. Conclusion has been made on the basis of empirical result. Policy recommendations are drawn for improvement of the existing inefficiency of pineapple production in Bangladesh.

10.2 Summary

A large number of people are involved in the production and marketing of the pineapple. The performance of this sector has an overwhelming impact on major macroeconomic objectives like employment generation, poverty alleviation, human resources development and food security. Actors played an important role in moving pineapple to the consumers but at cost sharper the present study investigate different value chain in which the actors acted as intermediate with their cost and margins.

The villages were purposively selected for collecting data from the pineaaple farmers. For convenience, the sample size of farmers was fixed at 100 from two villages. Data were also collected from some actors who worked in the valuation of marketing of pineapple in study areas. The actors involved in the marketing of pineapple included Faria, Bepari, Aratdar, wholesalers and retailers. A total of 60 actors including 15 Faria, 15 Bepari, 15 Aratdar, and 15 retailers and 100 farmers were selected purposively for the study. Primary data were collected from the respondent farmers and different actors by using separate interview schedules. Both the tabular and descriptive techniques were used for analyzing data. Considering that pineapple is an important fruit in Bangladesh, the product moved from the sellers to consumers through several changes i.e. through some market actors such as Faria, Bepari, Aratder, and retailers, since pineapple needs to move a long distance from the point of production to the consumers.

The major findings of the study revealed that pineapple production was profitable. BCR for pineapple production in this study were 1.35. In the production and marketing system

of pineapple, many value chain actors were involved such as Faria, Bepari, Aratdar and retailer. Demographic characteristics of pineapple farmers were categorized into age, education, farming experience etc. In this study, it was found that young and illiterate farmers were mostly engaged in pineapple cultivation. Farm gate price of pineapple received by farmers per 100 kg was Tk. 2316.66 and purchase price per 100 kg of pineapple paid by retailers was Tk. 4670. Total marketing cost was estimated at Tk. 3070.3 per 100 kg of pineapple. Among all intermediaries Farias' cost was highest and the lowest for retailers. The marketing margins of per 100 kg of pineapple of Faria, Bepari, Aratder, Retailers were Tk. 322.10, Tk. 182.35, Tk. 131.4 and Tk. 363.84 respectively. The study also measured the cost efficiency of pineapple production. Pineapple farmers were 96.0% cost efficient in pineapple production. The study also identified some major problems faced by farmers and actors in the pineapple value chain. The major problems faced by producer were lack of scientific knowledge (80%), lack of capital, seedling problem, transportation problem, storage facilities etc. Some recommendations are given to solve their problems. The Government should provide extension contract or improve training facilities for improving technical knowledge about pineapple production. Credit facilities through Bangladesh Krishi Bank (BKB) and other commercial banks should also improve. Low cost storage facilities should be developed at the primary and secondary markets by the local Government authority. Marketing problems found in the study area were unstable price of pineapple, lack of information, lack of transportation costs etc. Traders also suggested some measures for pineapple marketing problems. Possible suggestions by traders were available credit facilities, ensuring stable price, available transportation and available market facility.

10.3 Conclusion

Pineapple is extensively cultivated species in Madhupur and Jalchatro of Tangail district of Bangladesh. The management practice of based on the findings of the study it can be concluded apparently that considerable scope exists to increase the productivity of pineapple and to develop the value chain. The major finding of pineapple production was profitable in the study area. Pineapple producers were cost efficient in pineapple production. Despite of some limitations, the findings of the study confirm that the farmers

can obtain positive net return from cultivation of Pineapple. In the context of income generation and poverty alleviation, production of fruit like pineapple may play a crucial role in meeting the cash needs of the farmers. The findings of the study also revealed that the trading of pineapple is a profitable venture to different intermediaries. The profit of farmer was higher than that of other intermediaries and the profit was found reasonable. The marketing channel of pineapple was so long. Long marketing channel increases the product damage. The well planned management training and the marketing practice in accordance to with their problems, need, goals, and resource base can lead to viable marketing practice and sustainable income from the pineapple production. Farmer engaged in pineapple production was not very solvent to make the full utilization of value chain opportunity. They faced huge problem to store pineapple for better price in the off season. Credit facilities should be made available at low interest rate by government. Grading and standardization facilities should be utilized properly for efficient value chain of pineapple market. Lack of timely and proper market information was a great problem. So, market information should be available and ease accessible for the producers also for other value chain actors. Government should take proper initiatives for ensuring stable price and improving training facilities.

10.4 Recommendations

On the basis of the finding of the study it was evident that pineapple production was profitable enterprises and they can generate income earnings and employment opportunity to the rural people of Bangladesh. The policy makers should, therefore, take necessary measures. According to the findings of the study; some policy recommendations may be advanced which are likely to be useful for policy formulation. On the basis of the findings of the study, the following specific recommendation may be made for the development of pineapple sector in Bangladesh.

a) Government should take necessary measures to maintain reasonable price of inputs which have positive significant impact on yield. It will increase the net benefit of pineapple producers.

b) To avoid price fluctuation, it is necessary to established cold storage facility.

c) Pineapple farmers had to sell their product at low price during harvesting or just after harvest. An appropriate storage scheme should be developed so that the farmers are not forced to sell their product at low price in harvest period.

d) Operating capital is a problem for the resource poor farmers of the study area. Institutional credit program should be launched aiming at particularly the small and medium farmers. The commercial bank should be encouraged to provide loans at a low interest rate to enable farmers to operate their farming on commercial basis.

e) As pineapple is profitable enterprise, government and concern institutions should provide adequate extension program to expand their area and production.

f) Steps should be taken to ensure fair price, quality of product, floor price, and the stability of production.

Moreover, a large number of people were involved in the production and marketing of pineapple. So, the farmers and intermediaries could be more benefited financially if production and marketing channel of pineapple were efficient.

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APPENDIX

APPENDIX 1: Questionnaire for Pineapple producers

Department of Agribusiness & Marketing

Sher-e-Bangla Agricultural University,

Dhaka-1207

Research title: Value chain analysis of pineapple in Tangail district of Bangladesh

Serial no: Date:

1. Name: Contact Number:

2. Address

Village: Union:

Upazilla: District:

3. Age: (years) 4. Gender:

5. Education (Years of schooling):

6. Occupation

Primary: Secondary:

[Code: 1=Agriculture, 2=Employment, 3=Day labor, 4=Petty businessman, 5=Others]

7.Types of farmer

1=Owner operator, 2=Pure tenant, 3=Owner cum tenant

8. Farm type (acre):

Small (0.5-2.49) =1, Medium (2.5-7.49) =2, Large (7.50+)

9. Pineapple production: Yes/No

10. Family member information

Members	Age	Level of education	Agriculture labor (yes/no)
Wife			
Son			
Son			
Son			
Daughter			
Daughter			
Total family members including pineapple production			

11. Different characteristics of farmer

Characteristics	Value
1.No. of agricultural training (Per year)	
2.Farm whom do you get training	
3.No. of extension contact (Per year)	
4.Years of farming experience (year)	
5.Organizational participation (NGO's, Cooperatives) Yes/No	
6. Farmers have access to TV (Yes/No)	
7. Farmers have mobile phone (Yes/No)	
8. Farm size (decimal)	
9.Pineapple cultivated area (decimal)	
10.Farmers used modern variety seed (yes/no)	
11.Farmers used organic fertilizer (yes/no)	
12. Distance from to local market (km)	

12. Do you borrow loan for pineapple production? Yes/ No

13. If yes is the answer, then fillip the table

Source	Amount	Duration	Interest rate
Bank			
NGO			
Friends/ Relatives			
Non institutional sources			

14. Cost of Commercial pineapple production (Tk./ha)

Cost items	Unit (Tk.)	Quantity	Tk./Unit	Total cost
Seed cost				
Saker cost				
Power tiller cost				
Labor cost				
Planting cost				
Fertilizer application cost				
Weeding cost				
Fertilizer cost • Urea				
• Triple super phosphate				
• Muriate of potash				
• Gypsum				
• Zinc				
• Boric acid				
Cow dung				
Organic fertilizer cost				
Pesticides cost				
Pesticides application cost				
Pesticides				

Insecticide cost				
Insecticide application cost				
Input transportation				
Vitamin cost (if any)				
Labor cost of harvesting				
Labor cost for storage				
Total Variable cost				
Interest on operating capital (9%interest on capital)				
Land use cost(6 month)				
Fixed cost				

15. Revenue from pineapple (Tk./ha)

Items	Total quantity	Per unit price (Tk./ha)	Total revenue
Pineapple			
Stem			

16. Production problems faced by pineapple farmers

Items of problems	Give tick mark
Inadequate capital	
High price of labor	
Infestation of pest and disease	
Unavailabilty and high price of inputs	
Lack of credit facility	
Unavailability of quality seedling	
Lack of availability of fertilizer	
Selling problem	
Perishiblity	
Lack of fertile land	

Problems of pineapple production and marketing

Problems	Yes/No
Diseases	
High prices of inputs	
Lack of transportation	
Low price of pineapple	
Lack of marketing facilities	
Lack of scientific and technical and knowledge	
Lack of Market information	

Possible solution suggested by farmers

Items of solution	Give tick marks
Need available capital	
Need to reduce the price of insecticide and pesticide	
Need good quality stem	
Need more land	

Pineapple marketing problem

Items of problem	Please give tick mark
Lack of traders for buy pineapple	
Lack of transportation facilities	
Lack of storage facilities	
Lack of market facilities	
Lack of information	
Pineapple spoilage and damage at the time of marketing	

Possible solution to solve marketing problem

Items	Please give tick mark
Need available market information	
Need available storage facilities	
Need available transportation facilities	

Signature of the interviewer

APPENDIX 2: Questionnaire for Pineapple traders

Department of Agribusiness & Marketing

Sher-e-Bangla Agricultural University,

Dhaka-1207

Research title: Value chain analysis of pineapple in Tangail district of Bangladesh

Type of traders: Pineapple Faria =1, Pineapple Bepari =2, Pineapple Aratdar =3,

Pineapple retailer = 4

Serial no: Date:

1. Identification of the respondent

a. Name of the traders: Contact Number:

b. Address:

Bazar name: Union:

Upazilla: District:

c. Age: e. Gender:

d. Education (Years of schooling):

f. Business ownership

a. Single b. Partnership c. Others

3. How many traders of your category are operating in this market?

4. Marketing function

A. From whom do you buy pineapple?

Actors	Percent
Farmer	
Faria	
Aratdar	
Bepari	
Total	

B. To whom do you sell pineapple?

Actors	Percent
Faria	
Aratdar	
Retailer	
Total	

C. Payment method in case of buying and selling pineapple

Items	Payment method		
	Cash	credit	Both
Buy			
Sell			

D. Transportation modes and marketing function collected by actors

Items		Tk. / unit
Transportation modes	Rickshaw	
	Van	
	Auto van	
	Trolly van	
	Tractor	
	Truck	
Sources of market information	Television	
	Newspaper	
	Mobile phone	
	Market visit	
	Traders or others	

E. Do you grade pineapple? Yes/ No

F. Do you borrow loan for your pineapple business? Yes/No

G. If yes, then fill-up the table

Institutions	Amount	Duration	Interest rate
Bank			
NGO			
Friends/Relatives			
Non institutional sources (money lenders)			

5. Marketing cost of buying pineapple

Cost items	Tk./ price
Transportation	
Loading	
Sack/Bag	
Market toll	
Weighting	
Personal expenses (tea,food and others}	
Rent for shop	
Electricity bill	
Sorting	
Labor cost	
Total variable cost	
Interest on operating capital	
Total marketing cost	

6. Marketing cost of selling pineapple

Cost items	Cost
Transportation	
Unloading	
Labor	
Bagging	
Entertainment cost	
Total cost	

7. Value addition by traders

Value addition	Items	Tk.
Value addition due to marketing of pineapple	Purchase price	
	Selling price	

8. Marketing Channel choice by traders (please give tick mark)

1. Producer/ Farmers-Aratdar-Bepari-Consumers

2.Aratdar-Bepari-Consumers

3.Farmers-Bepari-Consumers

9. Major Constraints of pineapple traders

Items of problems	
Inadequate capital	
Unstable pineapple price	
High transportation cost	
Inadequate storage facilities	
Lack of market information	
High rent of shop	
High electricity cost	
High tips and donation	
Lack of credit facilities	
Delay in cash payment	
Others	

9. Major solution to solve problems

Possible suggestion	Tick mark
Available credit facilities	
Available market facilities	
Increase transportation facilities	
Increase storage facilities	
Need adequate market facilities	
Need adequate market information	
Need adequate transportation facilities	
Low interest rate	
Others	

Signature of the interviewer