SOCIO- ECONOMIC STATUS AND MARKETING SYSTEM OF BANANA CULTIVATORS IN NARSINGDI DISTRICT

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CERTIFICATE

This is to certify that thesis entitled, "SOCIO- ECONOMIC STATUS AND MARKETING SYSTEM OF BANANA CULTIVATORS IN NARSINGDI DISTRICT" submitted to the faculty of Agribusiness Management, Sher-e-Bangla Agricultural University, Dhaka, in partial fulfillment of the requirements for the degree of **MASTER OF SCIENCE IN DEVELOPMENT AND POVERTY STUDIES ,** embodies the result of a piece of bona fide research work carried out by **NUSRAT SARMIN** bearing **Registration No.11-04537** 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, as has been availed of during course of this investigation has duly been acknowledged.

December, 2018
Dhaka, Bangladesh

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DECLARATION

I am Nusrat Sarmin Registration No: 11-04537, hereby declared that this Thesis socio-economic status and marketing system of banana cultivators in Narsingdi district is prepared by me after successfully come my thesis program Narsingdi district. Under the kind supervision of Md. Abdul Latif Professor, Department of Agricultural Statistics, Sher-e-Bangla Agricultural University.

I also confirm that the thesis is only prepared by me to meet the academic requirement, not for any other purpose. I hereby declare that this dissertation or part thereof has not been submitted by me to any other University od Institute for a degree or diploma.

I am hopeful that my respected faculty will consider my mistake with graceful perspective.

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ABSTRACT

The study was conducted to identify the socio- economic status and marketing system of banana cultivator's association between two categorical indicators of sampled respondents, marketing channel of banana in study area and examine the problems of banana producers in production and marketing by using the concerned software SPSS-21(Statistical Package for the Social Science). The data have been collected through pre-designed and pre-tested questionnaire from 60 farm households. On the basis of education level, major part is primary were 40%. The average annual agricultural income estimated as 108596.49 TK. from other crops, 152631.58 TK. from livestock, 65789.47 TK. from fishery and 145357.14 TK. from others. And average annual non-agricultural income estimated as 46500.00 TK. from land rent, 106000.00 TK. from house rent, 180000.00 TK. from wage/salary and 221953.49 TK. from others. Average total land of respondent was 1.84 acres, average cultivated land was 1.64 acres and average banana cultivated area was .85 acres. There is statistically less significant relationship between education and occupation also between education and family size, farmer categories and types of banana cultivation respectively but significant relationship between farmer categories and credit excess of banana cultivators. It was estimated that average annual total cost of production of banana was TK. 372,400, while gross return and net returns per farm were Tk. 550,400and Tk. 178,000 respectively. The overall benefit cost ratio of banana farming came out to 1.48 indicating that one Taka investment resulted in a net benefit of Tk.1.48. The marketing cost for petty trader, wholesaler and retailer was Tk. 21.12, Tk.16.05 and Tk.13.50 respectively. Retailer was the last intermediary of marketing channel. They were directly involved with customer. So retailer achived higher gross margin TK 50. The marketing cost was lowest for retailer and wholesaler and their gross margin were higher than other intermediaries. So, the net margin was highest for retailer and wholesaler Tk 36.5 and 28.95 respectively. The major problem found in the study was insect and disease infestation.

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CHAPTER 1
INTRODUCTION

INTRODUCTION

1.1 Background of the study

Bangladesh ranks 8th in the world with a population over 164.8 million surrounded by an area of 1,47,570 sq. km, but in economic consideration it is one of the poorest ones with per capita income (USD,2064), and low standard of living country compared to other countries. It is an agricultural country. Agriculture has a great contribution to the Gross Domestic Product (GDP) of the country. About 13.35% of GDP is derived from agriculture in the year 2017-18 (BBS, 2020).

Banana is one of the most important commercial tropical fruits traded in Bangladesh. The name "banana" comes from an Arabic word meaning "finger" (Banana Link, 2016). It is also known as "Adam Fig" (International tropical fruits network, 2016). Bangladesh ranks 14th among the top 20 banana producing countries in the world. The country produces nearly 1.00 million tons of bananas annually (Hossain, 2014). It is also a sustenance fruit crop in the world and grown in many tropical areas where they are used both as a staple food and dietary supplements. Each year about 35,000 children become blind due to lack of Vitamin-A. The common deficient nutrients of Bangladesh are Vitamin-A and Vitamin-C, riboflavin, folic acid etc. Banana provides those nutrients. Banana is one of the high-calorie fruits and 100 grams of its flesh carries 90 calories. Besides, it contains a good amount of health improving fiber, anti-oxidants, minerals, and vitamins. In Bangladesh, banana is the only fruit crop, which is available throughout the year and consumption rate is also higher than any other fruits.

Banana plays a significant role in the economy of Bangladesh. Production of banana on commercial scale has been increasing in different areas of Bangladesh. The Government of Bangladesh has given much emphasis on intensive cultivation of fruits and vegetables by year-round production to meet the nutritional needs of the growing population and to increase employment opportunities and income of the farmers. Banana is of considerable essential in the economy of Bangladesh. But until little efforts have been made to study the socio-economic status and marketing system of banana cultivators also identify problems of banana production which could help policy guideline regarding banana production in Bangladesh.

1.2 Importance of banana

Banana is the most vital fruit in Bangladesh comprising 42 per cent of the total fruit production in Bangladesh (BBS 2004). It occupies an important position among the fruits of the country not only for its wide cultivation all over Bangladesh but also for food value and availability throughout the year.

Banana is a delicious food crop grow widely all over Bangladesh and is the most essential food crop for its food value and availability. Other important fruit crops such as mango, litchis, jackfruits and pineapples have the disadvantages of being seasonal in nature (USAID 1969).

Banana is full of fiber, both soluble and insoluble. The soluble fiber has the tendency to slow down digestion and gives the feeling of full for a longer time. Which is why bananas are often included in a breakfast meal so that one can start the day without having to worry about the next meal.

Banana is a heavyweight when it comes to nutrition. It is full of essential vitamins and minerals such as potassium, calcium, manganese, magnesium, iron, niacin, riboflavin, and B6. These all contribute to the proper functioning of the body.

The high content of potassium in bananas makes it a super fruit. This mineral is known for its plentiful health benefiting properties - it helps in regulating heartbeat, blood pressure, and keeps the brain alert. High fiber foods are also said to be good for the heart. It can lower the risk of both cardiovascular disease (CVD) and coronary heart disease (CHD).

Due to the high iron content in bananas, they are good for those suffering from anemia. Anemia is a condition where there is a decrease in the number of red blood cells or hemoglobin in the blood. It causes to fatigue, shortness of breath, and paleness. Banana can reduce this.

Banana has a special role in preventing liver and kidney disease, as its copper helps to reduce collagen. So that the infected and affected area of liver and kidney might find heal, as collagen always produces a rare protein, which rectifies the damage and brings ultimate cure.

1.3 Area and production of banana in Bangladesh

There are some important varieties of commercial bananas, namely, Amristsagar, Mehersagar, Chinichampa, Dudhsarar, Sabri, Kathali, Singapuri, Gerasundari, Kabri, Basri and Green Bananas (used as vegetables) grown much in Bangladesh. Among these Amritsagar, Sabri and Chinichampa are the leading commercial varieties of banana in this country. Again, of these three varieties, Amritsagar occupies the top position in respect of area, production and trade. The optimum time of planting of this variety is September-October (Haque 1983).

The low temperature prevailing during December to February retards its vegetative growth to a minimum. Usually bananas are harvested after 9-12 month of plantation. The space between the young plants specially during the first few months of crop growth, provides a scope for temporal and spatial complementarily by growing short duration, early maturing winter cash crops (Shil and Mondal 1990).

Major Districts of cultivated Banana are Narsingdi, Gazipur, Rangpur, Bogra, Nator, Pabna, Noakhali, Faridpur, Khulna in our country. Districts of wild grown Banana are Sylhet, Moulvibazar, Netrokona, Rangamati, Khagrachhari, Bandarban. (Mukul *et al.*,2013).

Table 1.1. Area under banana production in Bangladesh, 2011-12 to 2016-17

Year	Area(acres)
2011-12	121718
2012-13	119325
2013-14	114669
2014-15	115434
2015-16	117159
2016-17	120203

Source: (Yearbook of Agricultural Statistics, 2013, 2017)

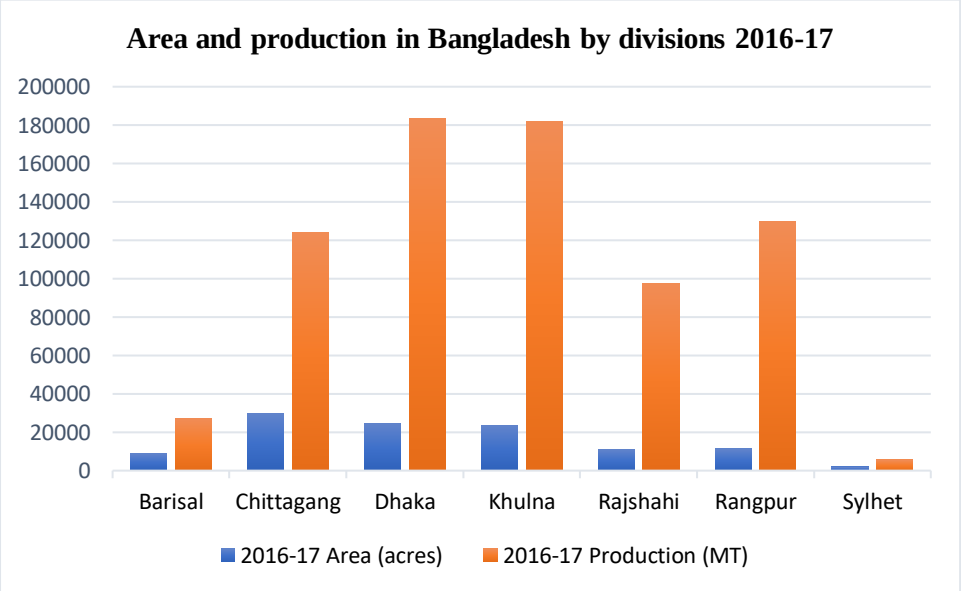
From table 1.1 it is seen that, year by year (2012-13 to 2016-17) area under banana production in Bangladesh gradually decreased. In 2011-12, it is slightly increased.

Table 1.2. Area and production of banana in Bangladesh by divisions, 2015- 16 to 2018-19

Division	2015- 16		2018-19	
	Area (acres)	**Production (MT)**	**Area(acres)**	**Production (MT)**
Barisal	8850	26143	9417	29257
Chittagang	29670	124981	31164	123455
Dhaka	33028	239058	23331	194737
Khulna	21917	170875	24592	201995
Rajshahi	10469	100420	11326	98838
Rangpur	11417	131585	11187	126852
Sylhet	1808	4950	1831	5820

Source: (Yearbook of Agricultural Statistics, 2017,2019)

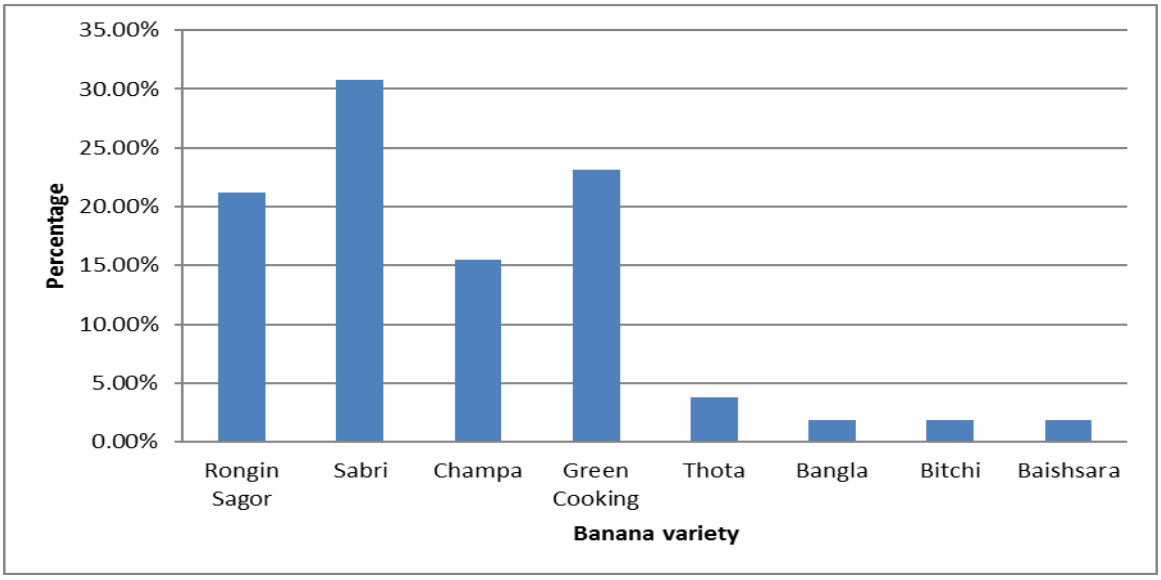
In Table 1. 2, it shows that Dhaka division provides highest part of banana production and lowest banana production area is Sylhet in the year of 2015-16. Also, Khulna division provides highest part of banana production and lowest banana production area is Sylhet in the year of 2018-19.



Source: (Yearbook of Agricultural Statistics, 2017)

Figure 1.1. Banana production in Bangladesh by divisions, 2016-17

In 2016-17 banana production is highest in Dhaka and lowest in Sylhet. Area is highest in Chittagang and lowest in Sylhet. (Figure 1.1)



Source: (Fonsah *et al.*, 2017)

Figure 1.2. Variety of banana cultivated

The most popular variety of banana cultivated was Sabri-kola (30.8%), with 21.2% cultivating Rongin Sagor-kola and 15.4% cultivating Champa-kola. Additionally, 23.1% cultivated green or cooking bananas. Less-cultivated varieties were Thota-kola (3.8%) and Bangla-kola, Bitchi-kola, and Baishara-kola (1.9% each). (Figure 1.2)

1.4 Objectives of the study

- ❖ To highlight the socio-economic status of banana cultivators
- ❖ To identify the marketing channel of banana in the study area and
- ❖ To identify the problems of banana producer in production and marketing.

1.5 Justification of the study

Banana is a commercial fruit, but in the context of Bangladesh, it is grown in limited area commercially. Adequate care is not taken for its cultivation even for its marketing. Inadequate marketing of banana affects the income of the producers and its trading which also limits the expansion of socio-economic function in the country.

Banana is perishable fruit which requires careful handling and quick marketing. No modern storage has yet been developed in the country. Sale of banana at reasonable price and at desirable time is a major challenge under the inadequate marketing system. Particularly due to proper storage and transportation system, a large volume of banana is reportedly damaged and wasted in marketing process. This wastage is a net leakage of total national fruit production, which results in higher consumer's price and lower returns to producers.

Despite of the importance of the banana in the economy of Bangladesh, a few researches works on the marketing aspects of banana have done in the country. So, it is felt that study on socio economic status and marketing system of banana could be of much importance. The present study will provide some important information to the producers, traders and consumers. The findings of the study and recommendations will help the policy makers in formulating appropriate policy for the improvement of socio-economic status and marketing system. From this study the researcher will get accurate and recent information that will help to conduct further research in future.

1.6 Outline of the study

The remainder of the thesis is structured as follows: Following introduction in chapter 1, chapter 2 provides the literature or the theoretical underpinning for the study while chapter 3 is concerned with the research methods detailing about the general process of research and analytical approach of the study. In chapter 4 socio-economic characteristics, an association between two categorical indicators of sampled respondents, marketing of banana and the problems of banana producer in production and marketing are described. Finally, chapter 5 contains general conclusions and recommendations based on the empirical results of the study.

CHAPTER 2

REVIEW OF LITERATURE

REVIEW OF LITERATURE

To develop clarity and comprehension in any study, it is necessary to review the various concepts, research methodologies and analytical tools used by researchers earlier in their studies. Such an attempt would help the researcher to have a better and precise understanding of the perspectives of the research problem and would also facilitate the researcher to modify and improve the present analytical framework in the right direction. The findings of the earlier studies would guide the researcher in setting the hypothesis and objectives and to compare the findings. This briefly reviews the concepts, research methodologies, analytical tools and findings of the past studies which are relevant to the present study.

Simmonds (1982) discussed the varieties and the methods of transport in different countries and gave a good account of the economic characteristics of banana. The return is quick as it can be harvested in a year. It is quick to recover from the damage caused by wind. It demands more fertilizers and water. The labor requirements and income from banana vary with season. It is economical as the income from it is spread over a period of few months.

Vigneshwara (1986) noticed that banana growers facing several marketing problems such as fluctuations in prices, the excessive involvement of intermediaries, transportation, and storage, absence of grading and standardization. Other problems such as the absence of adequate finance facilities, non-availability of efficient marketing information system, lack of packing, non-existence of organization among growers etc.

Arputharaj and Nair (1988) noted that the difficulties experienced by banana growing farmers in Kerala were pest attack, damage due to the wind and financial difficulties.

Venkateswarlu (1988) in his study on banana found that physical returns were more in the case of ratoon crop than planted crop and decreased with increase in farm size. The cost of production per unit was high for planted crop over ratoon crop. He also observed that the breaks even output was below the average yields on all groups of farms indicating profitability in banana cultivation.

Shing and Wani (1989) gave suggestions for solving the problem associated with marketing and productions of perishable products like vegetable and fruits in the country. They opined that the basic approach to production and marketing policy that has to start in India relies on a set a diversification horizontal, vertical and Regional. They also emphasized that privet sector could play a major role in perishable product improvement programmed by research on the market.

Alston *et al.,* (1995) in his study analyzed technology leads to capital labor substitution for capital intensive technology. It also requires heavy investment in education, research and development that may he costly to the society and firms. It sometimes violates ethics like cloning. Despite all these, technology is vital for production and its demerits to benefits are insignificant.

Joel Mpawenimana (1997) in his study analyzed the socio-economic factors influencing the production of bananas in Kanama District in Rwanada. After estimating the relationship between the output of bananas and various socioeconomic factors, the findings showed that various socio-economic factors have to be reviewed in order to improve the production of bananas in the country. The results described that acreage (land), physical capital, fertilizer and price, have positive relationship with the banana output. These are the factors on which the government should give emphasis in order to increase the production of bananas. There are other factors such as education has shown a positive coefficient, but explained an insignificant relationship to the banana output. One of the reasons is that educated people run away from rural areas to towns. Labor was another factor which has shown a negative effect. However, based on the above findings, he concluded that land, physical capital, fertilizer, and price are the important socio-economic factors that have effect on the production of bananas in Rwanda.

Kamal *et al.,* (1998) in their paper viewed that in India, banana marketing is a multi-stage process which includes accumulation, transportation, grading, distribution etc. For the improvement and development of the marketing structure, a co-ordinate approach aimed at removing all the weak links in the marketing chain is essential. A package of improved marketing services in the form of regulated co-operative markets, facilities for grading, weighing, storing, transporting, handling and finance provision is

to be made available to ensure the producer a fair return from his production effort and a better share in the price paid by the consumer by fixing an appropriate support price and procurement price.

Mbogo (2001) undertook a survey on economic analysis of the production of TC bananas and an assessment of their market potential in relation to Nairobi as a metropolitan market. The data for the study was gathered from groups in Maragua that had adopted the technology. The study established that banana value chain was not clear and the cooking varieties were most preferred in the market. It also revealed that good agronomic practices would help in use of suckers to disseminate the technology. The survey recommended a diffusion project for the technology and proposed an intervention by the government to control the quality of production in order to reduce the number of somaclonal variants.

Mbogo (2002) conducted a baseline survey on the socio-economic impact of TC banana project in Kenya. The study was done in a project funded by FARM Africa and implemented by ISAAA and KAR1. The study aimed at evaluating the economic worth of TC banana project. Data analysis was done using discounting benefits costs ratio model. Data for the study was gathered using a stratified random sample of 72 banana farmers in Maragua and Murang'a region in Central Province. Kenya were interviewed using a structed questionnaire. The survey showed that the TC banana enterprise was worthwhile investment with a high rate of return compared to the capital invested. The technology adoption led to a rise in income, women participation in farming activities and high trade margins. The discounted streams of costs and benefits over 10 years period showed a benefit cost ratio of 4.8. The survey recommended up-scaling of the technology diffusion with a micro-credit component.

Nyamori (2003) analyzed the socio-economic background of tissue culture banana production in Nyanza. The project was funded by FARM Africa and implemented by ISAAA and KARl-Kisii. The aims of the study were to identify the empirical social economic factors that influence adoption of the TC technology in the region, identify constraints to adoption with a view to recommending strategies that would boost take up of the innovation, to gather information that would form a basis for monitoring and evaluation. The data for the study was gathered from six groups that had 123 members.

The study showed that the main socio-economic factors influencing adoption were gender, price of plants, food culture, yield, information dissemination. The main constraints to adoption were; high plant lets prices, small land sizes per household, lack of information, lack of capital and high level of illiteracy among the residents. The information gathered that formed a basis for monitoring and evaluation was that: female participating in the technology were more than males, majority of the households that were members of the farmer field schools were poor. The survey also established that banana provided an average of Kshs 500 per month that constitutes 20 percent of the total income generated from farm activities. Land handling within the three districts was found to be 1.8 acres with approximately 0.153 acres devoted to TC and 0.223 acres to non-TC banana production.

Lustv and Smale (2002) analyzed the household model under perfect market conditions and found that production and consumption decisions are assumed to be made separately. On the production side, which is subject of our study, the household chooses the levels of labor and other variables inputs that maximize farm profits given the current configuration of capital and land and the expenditure constraint. Optimal input choices depend on input prices, output prices, and wage rates, as well as the physical characteristics of the farm technology. In this household model, they prove that soil quality and technologies are considered exogenous factors, which do not change with time. The soil quality is also affected by farmer decisions, since quality declines in terms ot soil nutrients and soil organic matter during the production process. Soil quality is affected hy two types inputs: yield increasing 19 inputs (such as new banana varieties) and soil conserving inputs. Based on this analysis, it has practical application to the Rwandan case. However, we note that Lusty and Smale conducted then analysis under the assumption of perfect market information in the hast African countries in uganda and Tanzania. These two countries have almost a similar culture of banana planting with that Rwanda. This study will however assume the condition of imperfect markets in the case of Rwanda when analyzing the data.

Hossain (2014) in their study he founded that the total production was decreased 1004520 tones to 800840 tons due to decreasing cultivated area. The highest Banana cultivated area was observed in Tangail region considering 23 regions from 2006-07 to

2010-11 The total area for banana production under Tangail region gradually decreased from 26260 acres (10631 ha) to 16863 acres (6827 ha). The minimum cultivated area of Banana in 2010-11 was observed in Pabna region. Considering the year-round availability, nutritional value, uses, prices, popularity and production, Banana is considered the number one fruit in Bangladesh. Biological constraints such as insect-pest-diseases are cause serious damage and yield loss of banana in Bangladesh.

Diana *et al.,* (2007) analyzed long used farm experiences enable farmers to identify the crops' requirement. Damages from weevil's attack had inspired farmers to innovate techniques to reduce the lost. They split the weevil infested banana pseudo stem sucker and placed it upside down on the stools to trap the weevils. Human urine, omuhuko leaves, water and pepper are mixed, fermented for two weeks and applied around the banana stool to control the banana weevils' attack.

kamal *et al.,* (1998) in their paper viewed that in India, banana marketing is a multi-stage process which includes accumulation, transportation, grading, distribution etc. For the improvement and development of the marketing structure, a co-ordinate approach aimed at removing all the weak links in the marketing chain is essential. A package of improved marketing services in the form of regulated co-operative markets, facilities for grading, weighing, storing, transporting, handling and finance provision is to be made available to ensure the producer a fair return from his production effort and a better share in the price paid by the consumer by fixing an appropriate support price and procurement price.

Quddas *et al*. (1999) conducted the study on socio-economic aspects of banana cultivators and marketing of banana by intermediaries in Jamalpur district in Bangladesh and revealed that a smaller number of intermediaries involved in the marketing channel earns maximum profit. They concluded that purchase price, transportation cost and size of intermediaries were the major determinants of selling price.

Baiyeri and Ajayi (2000) In their study in constraints to banana plantation in sub humid region of Nigeria they analyzed that 69% of male and 31% of female involved in

production of banana they found that lack of money, low productivity due to unavailability of manure and fertilizer and long-life period of banana was the major problem of the study area.

Hossain (2000) in Bangladesh conducted a study to determine the realative profitablity of Mehersagar and Amritsagar varieties of banana in Mymensingh and Tangail district. His survey period was April to May, 2000 and sample (20 farmers growing Amrit Sagar and 40 farmers growing Meher Sagar) were selected randomely for this study. He found that Amrit sagar banana was more profitable than Meher Sagar banana production. Per hectare gross returns, net retuns above cash cost and net return above full cost of Amrit Sagar banana production were Tk. 206782, Tk. 127516 and Tk. 91793 respectively, while the corresponding returns for meher sugar banana production were Tk. 182505.59 Tk. 106821.73 and 72167.55 respectively.

Mishra *et al.,* (2000) studied in production and marketing of Banana in Gorakhpur district of utter Pradesh and analyzed the cost and return from Banana in their study area the sample respondent are classified in small medium and large farmer group according to their land holdings he founds the gross return was higher in large size farmer group followed by medium and small farmers which is 73400.00, 72250.00 and 67750.00 Respectively also founds that the cost of cultivation of banana on small medium and large farmer was 36281.50 37820.50 and 38447.50 respectively.

Mali *et al*., (2003) studied the cost of production and marketing practices, marketing channels, marketing costs, price realized and problems in marketing of Banana, which will help to suggest remedial measures for improving present marketing system. The cost of cultivation of Banana worked out to Rs. 133477.36 per hectare. The gross returns per hectare of Banana came to Rs. 214867.24 and net returns of Rs. 66761.87 were obtained by deducting the cost of marketing.

Ashok (2004) studied the "Liberalization and Globalization: Issues in Agricultural Marketing", tried to bring into focus the need for a long term prospective in the field of agricultural market keeping in mind the agricultural production, consumption requirements and global changes. The existing system has to be revitalized to take up the thrown up by the forces of globalization and give a proper direction to all sections

of the agricultural marketing system, so that integration does not have a negative fallout on the economy.

Rane and Bagade (2006) studied economics of production and marketing of banana in Sindhudurg district of Maharashtra. The study reveals that farmers were facing the problem of diseases i.e. bunchy top disease of banana and facing the problem of pest i.e. aphids of banana in production of banana.

Kathirvel (2008) analyzed the economic factors limiting to banana production with the help of Garrett Ranking Technique. He pointed out that credit inadequacy was the major problem (Rank 1) in the production of banana. High Fertilizer cost was the next important problem (Rank 2). The small size of farm holdings, the lack of technical guidance was the least important problems.

More *et al*., (2008) total 120 farmers formed the sample of study. In production of Banana 100 per cent of cultivators faced the constraints of Musa sercospora followed by 45 per cent faced the problem of high wages of labour while major constrains in marketing of banana was delayed payments (67.50%) followed by high commission of market intermediaries (55.00%).

Geetha and Meena (2010) have adopted factor analysis to find out the problems faced by the farmers in the production of banana. They found that financial, environmental, farming, natural and personal risk and spoilage factors were the important problem factors in the production of banana.

Deshmukh *et al.,* (2013) this study analyzed the banana marketing network, identifies the role of various agencies involved and addresses their explicit problems. An extensive survey is done to study the problem and based upon the data generated, recommendations are given here to improve the Banana trade in suggestions and Jalgaon region. Study has revealed that Banana marketing is a very important aspect of Indian agro-economics. It is gigantic in magnitude. Yet it has tremendous potential to grow up. India has an ability to emerge as a global Banana leader in export. In the marketing chain of the banana also some improvements are required.

Deepak and Kumar (2014) agricultural marketing is necessary for Banana promotion. The study is curbed to only one district in Tamilnadu to be precise in Thoothukudi district. By examining various research results as one, the government can generate awareness among the farmers concerning banana cultivation and may push more farmers to cultivate this precious food, which is greatly vital to our habitual diet system. The marketing system be so designed as to give proper reward or return to the efforts of the farmer.

A general survey of the relevant literature revels that a few studies on socio- economic status and marketing system of banana cultivators have been conducted in different areas of the world and Bangladesh respectively. But the study on socio- economic status and marketing system of banana cultivators is scanty. Therefore, the present study attempts to analyzed the socio- economic status and marketing system of banana cultivators in some selected areas of Narsingdi district.

CHAPTER 3

METHODOLOGY

METHODOLOGY

Methodology is an indispensable and integral part of any study. The reliability of a specific study finding depends to a great extent on the appropriate methodology used in the study. Improper methodology very often leads to misleading result. So, careful considerations are needed by an author to follow a scientific and logical methodology for carrying out the study. This chapter describe the method and procedure followed in selecting the study areas, sources of data and the analyses. A chronological description of the methodology used for this study is presented below.

3.1 Source of data

Primary data had been collected by simple random sampling method using pre-designed and pretested face to face interview schedule. Questions had been designed to raise basic issues on the assessment. Besides, other necessary information had been collected from various research documents and papers like Statistical Yearbook of Bangladesh, Yearbook of Agricultural Statistics, Bangladesh Economic Review, The national and international journals, articles and publications and Internet.

3.2 Location of the study area

In order to make an assessment on socio-economic status of banana cultivators and marketing of banana in Narsingdi district, this study was conducted in selected area of Narsingdi district. Selection of the study area is an important factor for socio-economic study of target population. The study area and sample units were selected keeping in mind the objectives of the study. Study area should be selected carefully and tactfully so that they serve to fulfill the specific research objectives. The area in which a study is to be made depends on several factors like availability of data, the particular purpose of the study, access to the area and possible cooperation from the Banana cultivators. Although banana is grown all over the Bangladesh, Narsingdi district is leading banana producing area of Bangladesh. This study conducted at villages named Ichakhali, Khashowla and Joypura in Gazaria union of Palash upazilla under Narsingdi district. The locations are presented in Figure 3.1. There are some main reasons for selecting the area:

1. Suitability of the areas to fulfill the objectives of the study.
2. Concentration of different types of Banana cultivators and
3. Good communication to the selected area.

Figure 3.1. Map of Narsingdi district

3.3 Selection of sample and sampling technique

The main purpose of sampling is to select a small group which will represent a reasonably true picture of the population. Two factors need to be considered before selecting a sample. First one relates to the sample size which should be large enough to allow for adequate degrees of freedom in the statistical analysis. On the other hand, administration of field research, processing and analysis of data should be manageable within the limitations imposed by physical, human and financial resources. The size of the sample depends on a number of factors like variability in local conditions, the degree of precision required, the types of tabulation desired, the funds, the personnel and the time available for research. A sample of representative farms is, therefore, chosen in such a way that the information meets the purpose of the study. Data was collected from March to April. Pertinent data for this study were collected from selected 60 (Sixty) Banana cultivars comprising of younger, middle aged and elderly experienced farmers. To achieve the objectives of the study, a comprehensive interview schedule was design.

3.4 Processing, editing and tabulation of data

The data was checked and verified for the sake of consistency and completeness. Editing and coding were done before putting the data in computer. All the collected data were summarized and scrutinized carefully to eliminate all possible errors. Data were presented mostly in the tabular form, because it was of simple calculation, widely used and easy to understand. Besides, functional analysis was also adopted in a small scale to arrive at expected findings. Raw data were inserted in computer using the concerned software SPSS-21(Statistical Package for the Social Science).

3.5 Analytical technique

Data were analyzed with a view to achieving the objectives of the study. Descriptive statistics like average, percentage etc. were followed to analyze the data to achieve the objectives of the study.

3.6 Problems faced in collecting data

In collecting primary data, following problems and difficulties were faced by the researcher:

1. Most important problem was the time limitation for collecting primary data.

2. Most of the farmers in the selected areas hesitated to give actual information about their income sources. Because they thought that the researcher was an agent; therefore, they were shy of giving actual information.

3. Another important problem faced by researcher in selected areas was that the researcher had to depend solely on the memory of the respondents for collecting data because they did not keep any written record.

4. Most of the respondents in the study areas did not have any knowledge about research study. It was therefore difficult to explain the purpose of this research to convince them.

5. Sometimes, the farmers did not cooperate willingly with the researcher. They did not find any benefit to give information to the researcher.

6. On many occasions farm respondents were not available at home and in such cases the researcher had to give extra effort and time to collect the information from them.

CHAPTER 4

RESULTS AND DISCUSSION

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Socioeconomic condition of the sample farmers is very important in case of research planning because there are numerous interrelated and constituent attributes characterizes an individual and profoundly influences development of his/her behavior and personality. People differ from one another for the variation of socioeconomic aspects. However, for the present research, a few of the socioeconomic characteristics have been taken into consideration for discussion.

4.1 Gender

Gender plays an essential role in development. It is a way of looking that how social norms and power structure generated through on the lives and opportunities to different groups of men and women. Table 4.1 indicates that, there were 95% of male and rest 5% were female respondent in the study area.

Table 4.1. Gender of banana cultivators

Gender	No. of banana cultivators	% of banana cultivators
Male	57	95
Female	3	5
Total	**60**	**100**

Source: Field survey, 2019

4.2 Age

Age is generally defined as a span of years during which some event occurred. The age composition of population is the main basis of assessment for human capital. So, it is an essential indicator of population in study area.

Table 4.2. Age of banana cultivators

Age (Year)	No. of banana cultivators	% of banana cultivators
30-40	11	18.3
40-50	21	35
50-60	22	36.7
60-70	5	8.3
70-80	1	1.7
Total	**60**	**100**

Source: Field survey, 2019

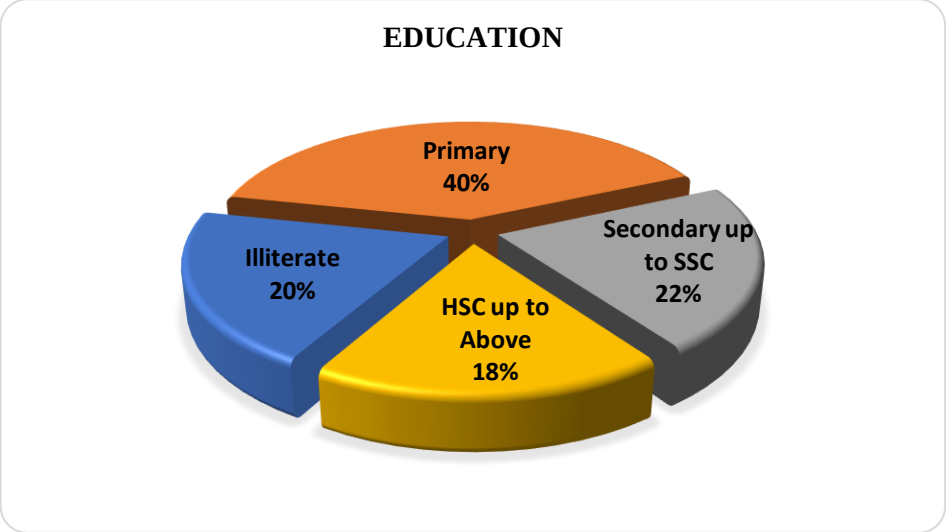
It is found that maximum age was 73 and minimum age was 30 in the study area. There are different age groups to examine the age distribution. Among the 60 farmers 18.3%

belong to 30-40 and 35%, 36.7%, 8.3% and 1.7% belong to 40-50, 50-60, 60-70, 70-80 age distribution respectively. Age of the majority of the respondents was between 50-60. (Table 4.2)

4.3 Education

Education plays an important role in adopting newer technologies and understanding various difficult things. So, there is a significant impact of education in society. There are some categories of education and these categories are illiterate, primary, secondary up to SSC and HSC up to above.

Out of 60 Banana cultivators, 20% were illiterate, major part is primary were 40%, secondary up to SSC were 22% and HSC up to Above level of education were 18% respectively. It could be said that majority of the respondent is primarily educated. (Figure 4.1)

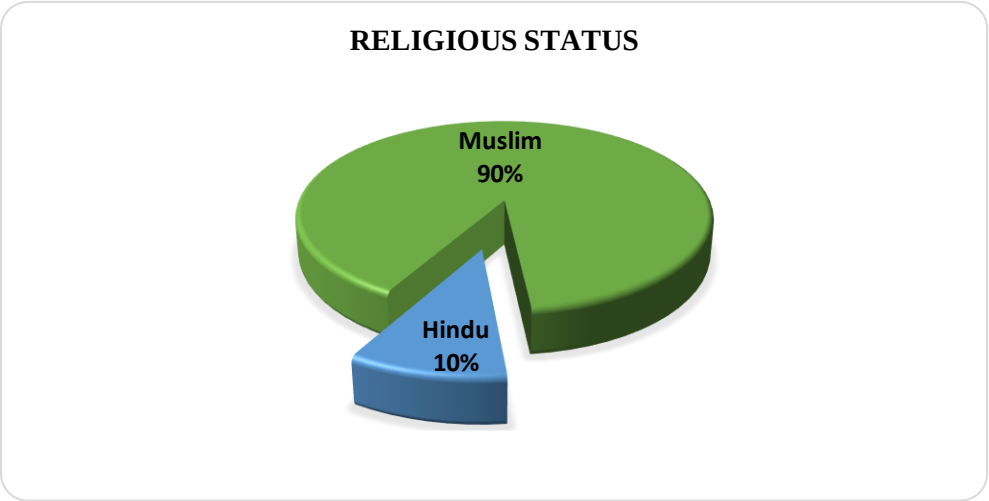


Source: Field survey, 2019

Figure 4.1 Educational status of banana cultivators

4.4 Religious status

In recent days, relation between religion and society have improved. Religious status in the study area was divided into two main parts, these were Muslim and Hindu. The findings revealed that 90% of respondent were Muslim and 10% were Hindu. (Figure 4.2)



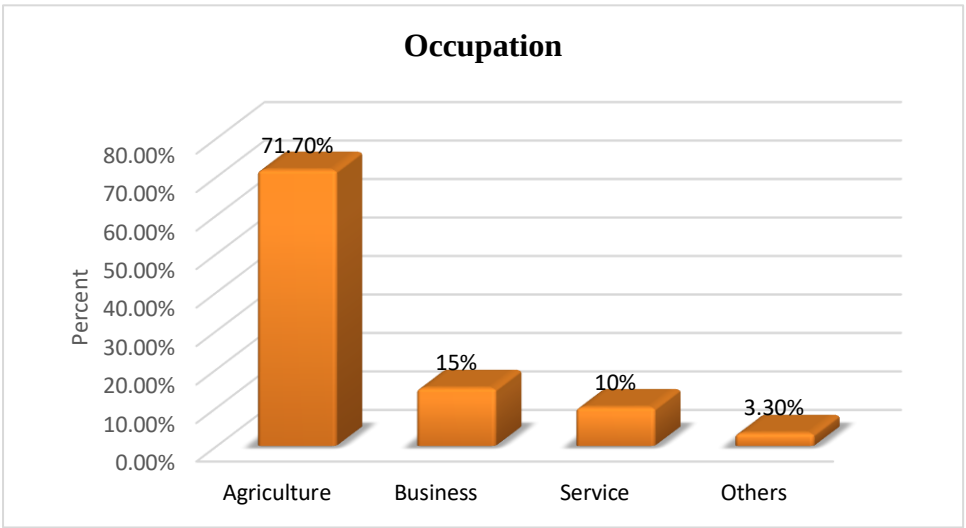
Source: Field survey, 2019

Figure 4.2 Religious status of banana cultivators

4.5 Occupation

Occupation is a vital attribute of socio-economic characteristic. The work in which a man is engaged the whole day is called his main occupation. In the rural area people's occupation are diversified in many areas. Bangladesh is an agriculture-based country, in the study area majority of the respondent living their livelihood by agriculture and it is inheritance by nature.

A bulk portion of total labor were engaged in agriculture and the rest were dealt with business, service and others occupation. In study area respondents who were associated with agriculture, business, service and others were 71.70%, 15%, 10% and 3.30% respectively. **(**Figure: 4.3)



Source: Field survey, 2019

Figure: 4.3 Occupation of banana cultivators in study area

4.6 Family description of banana cultivators

Family is a group of people united by the ties of marriage, blood, or adoption, constituting a single household and interacting with each other in their respective social positions, usually those of spouses, parents, children, and siblings.

The family performs various valuable functions for its members. The family provides social beneficial functions such as the rearing and socialization of children, with humanitarian activities as caring for its members when they are sick or disabled. On the economic side, the family provides food, shelter, clothing, and physical security for its members. Finally, the family may serve to promote order and stability within society as a whole.

4.6.1 Family head

Family head is the meaningful leader of a family. He actually gives the support and do proper maintenance of his family. In rural areas of Bangladesh, maximum household are husband headed and with the changing times joint headed family are getting popular.

In the banana cultivators of the study area it was found that, about 5% banana cultivator family were wife headed, 80% and 15% family were husband headed and joint headed family respectively. (Table 4.3)

Table 4.3. Family head

Family Head	No. of banana cultivator	% of banana cultivator
Wife headed	3	5
Husband headed	48	80
Joint headed	9	15
Total	**60**	**100**

Source: Field Survey, 2019

4.6.2 Family details

In the study area it was found that, average no of male members was 2.77, average no of female members was 2.85 and average no of working members was 1.58. (Table 4.4).

Table 4.4. Family details

Family Details	No. of banana cultivator	Average family members of banana cultivator
No of male members	60	2.77
No of female members	60	2.85
Working members	60	1.58

Source: Field Survey, 2019

4.6.3 Family categories

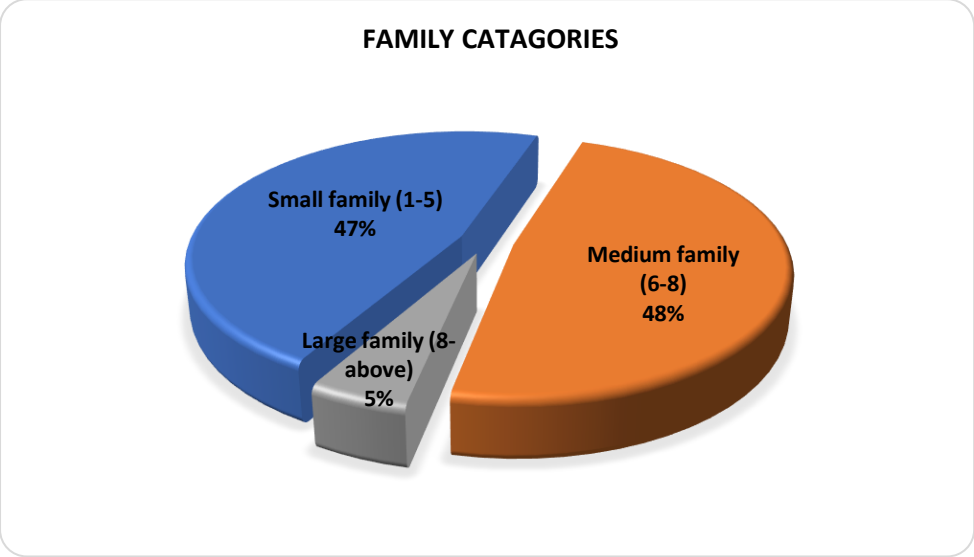
In rural Bangladesh, families are classified into three types:

I) Small family - married couples with children, where family member is 1-5

II) Medium family - married couples with their married children, where family member is 6-8

III) Large family - group of people related by blood and/or by law where family member is 8- above.

In the banana cultivators of the study area it was found that, about 47% banana cultivator family were small, 48% and 5% family were medium and large family respectively. (Figure 4.4)



Source: Field survey, 2019

Figure 4.4 Family categories of banana cultivators

4.7 Housing structure of banana cultivators

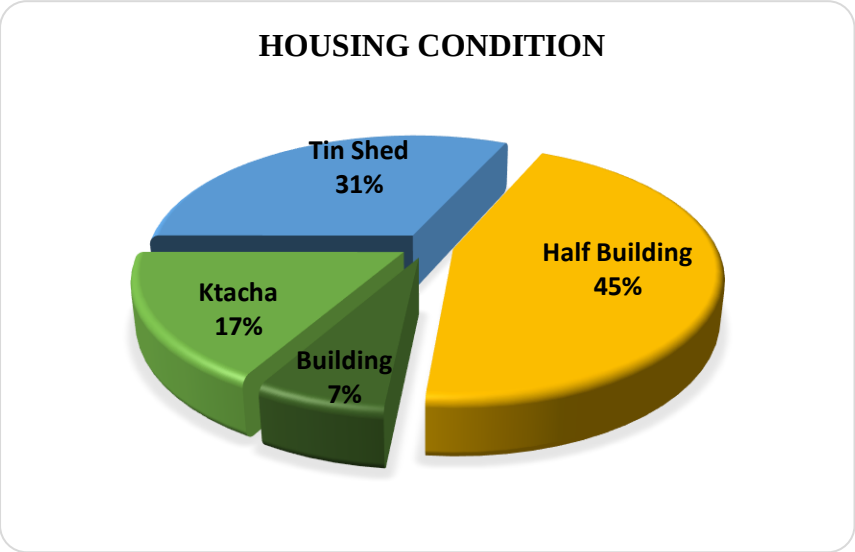
A household is where individual or a group of people live together at an address and share living experience. Household structure represent the picture of rural life. Generally household conducts one or more people living in the same household dwelling where each family member has different roles, responsibilities, opportunities, and constraints in managing natural resources within the household. So, household is the basic unit of analysis in many social, microeconomic and government model.

4.7.1 House dwelling unit ownership

Household dwelling unit of banana cultivators are two types as owned and rented. In rural areas banana cultivators in the study area shows that, housing is done mainly on land owned privately by the individual or that was inheritance.

4.7.2 Housing condition

Housing is the prime basic needs of every human being positioned after food and clothing. In Bangladesh existence of human settlements or housing have been found as early as prehistoric times.



Source: Field survey, 2019

Figure 4.5 Housing condition of banana cultivators

Since then style and pattern of housing have evolved in adaptation to environmental, economic and social needs and guided by climatic and geographical locations. Good housing conditions are also essential for people's health and affect childhood development.

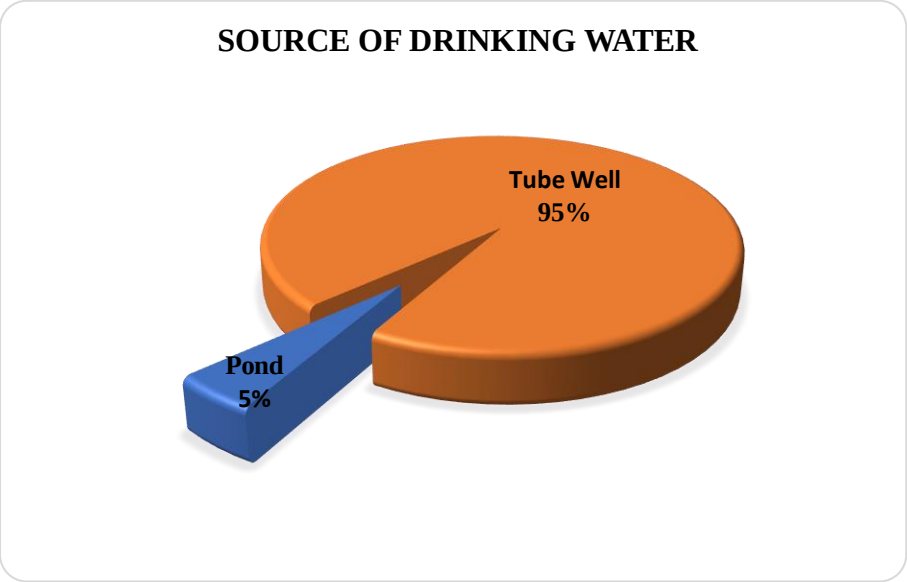
In the study area houses of banana cultivator were of four main types such as Ktacha, Tin Shed, Half Building and Building. From the study, it was showed that 17% belongs to Ktcha, 31%, 45% and 7% belongs to Tin Shed, Half Building and Building respectively. (Figure 4.5)

4.8 Drinking water quality of banana cultivators

Water is connected to every forms of life on earth. The amount of drinking water is needed to maintain good health and depends on physical activity level, age, health-related issues, and environmental conditions. Safe drinking water as a fundamental human right, and an essential step towards improving living standards.

4.8.1 Source of drinking water

Source of drinking water consist of pond and tube well. In rural areas most of the people use tube well water that is considered hygienic. In this studied area 95% of Banana cultivator use tube well water and rest of 5% use pond water. (Figure 4.6)



Source: Field survey, 2019

Figure 4.6 Source of drinking water

4.8.2 Drinking water facilities

Water is essential for public health, drinking, domestic purpose, food production and recreational purpose. In the rural areas generally, people use their owned water facilities in their house hold but in case of finding arsenic in their own tube well, they pursue it from neighbor.

Table 4.5. Drinking water facilities

Drinking water facility	No. of banana cultivators	% of banana cultivators
Own	59	98.3
Neighbor	1	1.7
Total	**60**	**100**

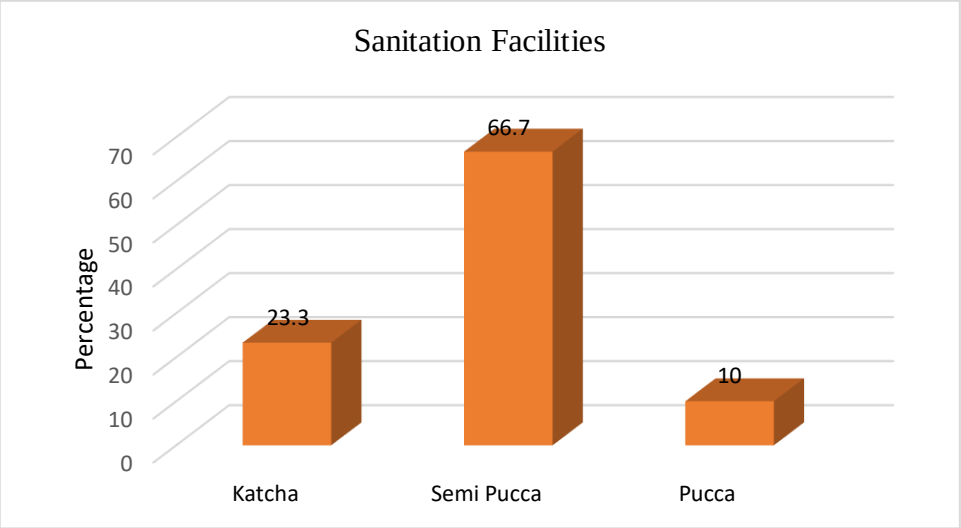
Source: Field survey, 2019

In the study area it is showed that 98.3% of Banana cultivator use owned water facilities. And rest 1.7% of banana cultivator use neighboring water facilities. (Table 4.5)

4.9 Sanitation facilities of banana cultivators

Sanitations means keeping places clean and healthy by providing a sewage system and a clean water supply. A hygienic sanitation can decrease the microbiological, biological and chemical attack of disease. Poor sanitation can cause infectious disease such as cholera, typhoid and dysentery.

Among the 60 respondents, it was found that 23.3% use katcha toilets, 66.7% and 10% respondents use Semi Pucca toilets and Pucca toilets respectively. (Figure 4.7)



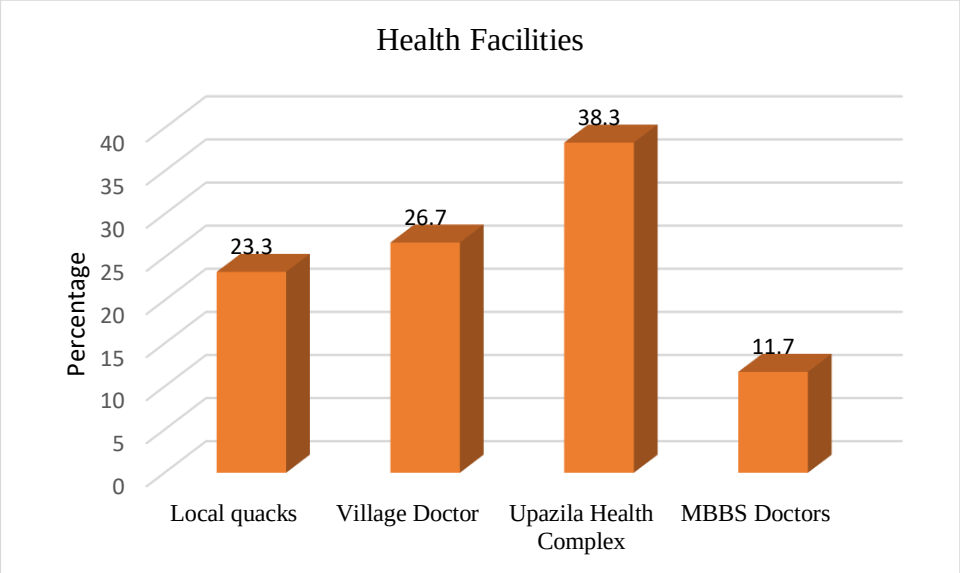
Source: Field survey, 2019

Figure 4.7 Sanitation facilities of banana cultivators

4.10 Health Facilities of banana cultivators

A health facility generally depends on the location where healthcare is provided. The number and quality of health facilities in a region is one common measure of that area's prosperity and quality of life.

In the study area most of the respondents were going to Upazila Health Complex because of increasing awareness among them by different public and private organization. Dependency on unskillful and unprofessional local quacks was decreasing. It was found that, 23.3% dependent on local quacks and 26.7%, 38.3% and 11.7% were dependent on village doctors, Upazila Health Complex and MBBS Doctors respectively. (Figure 4.8)



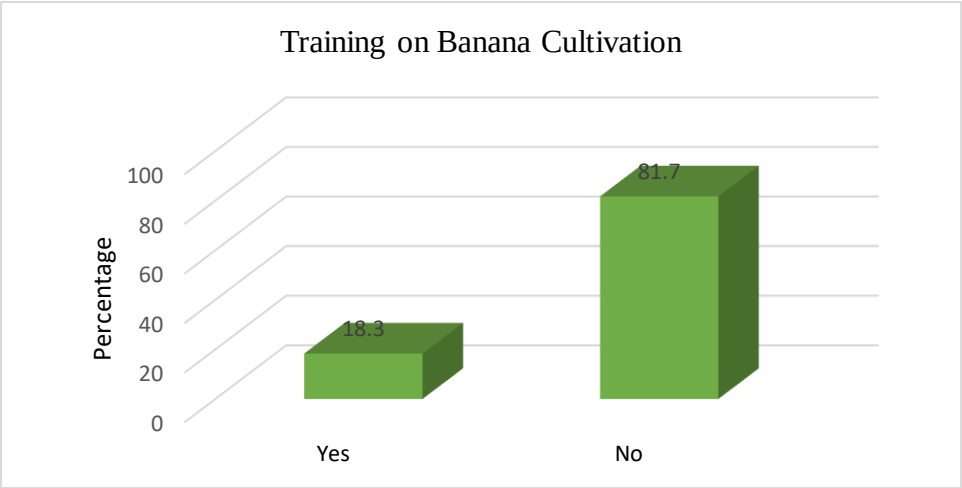
Source: Field survey, 2019

Figure 4.8 Health Facilities of banana cultivator

4.11 Training on banana cultivation

Training on Banana cultivation were very important in the study because of impacting technical knowhow to the farmers.

In the study area it was found that, 18.3% people take the training facilities but 81.7% of people did not take the training facilities. (Figure 4.9)



Source: Field survey, 2019
Figure 4.9 Training on banana cultivation

4.12 Association with banana cultivation

Association with Banana cultivation generally refers the number of years a farmer is engaged with Banana cultivation. Experience in fruit farming was expected to have a positive influence on production and profitability. As farmers become more experienced in production of fruits through their involvement, their probability to participate in economic transactions will be higher thus becoming more profitable. Respondents experience was gathered by inheritance or by training.

In the study area, Table 4.6 shows that average years of Banana cultivation is 17.38.

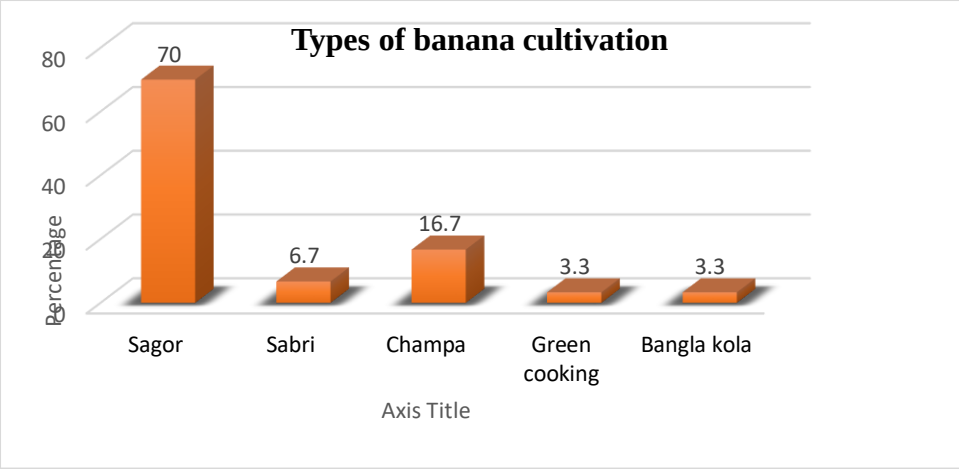
Table 4.6. Association with Banana cultivation

Association with banana cultivation	No. of banana cultivators	Average years of banana cultivators
Years of association	60	17.38

Source: Field Survey, 2019

4.13 Types of banana cultivation

Banana plants are popular among the respondents for year-round availability and production in the rural homesteads. In the study area, it was found that popular variety cultivated 70% of sagor-kola, 6.7%, 16.7%, 3.3% and 3.3% were sabri-kola, champa kola, Green cooking kola and Bangla kola respectively. (Figure 4.10)



Source: Field survey, 2019

Figure 4.10 Types of banana cultivation

4.14. Land details of banana cultivators

Land resource is important because humans not only live but also perform all economic activities on land. Land is the original source of all material things. In the study area it was found that, average total land of respondent was 1.84 acres, average cultivated land was 1.64 acres and average banana cultivated area was .85 acres. (Table 4.7)

Table 4.7. Land details of banana cultivators

Land details (Acres)	No. of banana cultivators	Average land of banana cultivators (Acres)
Total land of respondents	60	1.84
Cultivable land of respondent	60	1.64
Banana cultivated area of respondent	60	.85

Source: Field survey, 2019

4.14.1 Farm categories of banana cultivators

Farm categories were classified on different groups based on their land holding status. According to agricultural census of Bangladesh, a farm household was classified into categories such as: marginal (less than 0.05 acres) small (up to 2.49 acres); medium (2.50 to 7.49 acres); and large (7.50 acres or more) (BBS 2011).

In the study area, it was found that 5% of the respondents were marginal, 78.3%, 15%, 1.7% were small, medium and large famers. (Table 4.8)

Table 4.8. Farm categories of banana cultivators

Farm categories	No of respondents	Percentage of respondents
Marginal	3	5%
Small	47	78.33%
Medium	9	15%
Large	1	1.7%
Total	60	100%

Source: Field survey, 2019

4.15 Average annual income of banana cultivators

Income substantially influences the household economic and expenditure behavior both theoretically and empirically. In the study area, agricultural income was divided into four parts. These were others crop, livestock, fishery and others. It was showed that average annual agricultural income estimated as 108596.49 TK. from others crop, 152631.58 TK. from livestock, 65789.47 TK. from fishery and 145357.14 TK. from others.

On the other hand, Table 4.19 shows that non-agricultural income was divided into four parts. These were land rent, house rent, wage/salary and others. It was showed that average annual non-agricultural income estimated as 46500.00 TK. from land rent, 106000.00 TK. from house rent, 180000.00 TK. from wage/salary and 221953.49 TK. from others. (Table 4.9)

Table 4.9. Average annual income of banana cultivators

Average agricultural income (Tk./Family)			Average non-agricultural income (Tk./Family)		
Source of Income	**No. of banana cultivators**	**Average agricultural income**	**Source of income**	**No. of banana cultivators**	**Average non-agricultural income**
Others crop	57	108596.49	Land rent	10	46500.00
Livestock	57	152631.58	House rent	4	106000.00
Fishery	19	65789.47	Wage/Salary	6	180000.00
Others	14	145357.14	Others	43	221953.49

Source: Field survey,2019

4.16 Household expenditure of banana cultivators

Household expenditure of banana growers was divided into four parts. These were food, non-food, farming expenditure and others. In the study area average annual expenditure of Banana cultivator was estimated as 152283.33 TK. on food, 92118.64 TK. on non-

food (Education, cloth, fuel, health etc.), 126033.33 TK. on farming expenditure (crops, fishery, livestock etc.) and 59833.33 TK. on others. (Table 4.10)

Table 4.10. Household expenditure of banana cultivators

Expenditure type	No. of banana cultivators	Average expenditure of banana cultivators (Tk./Family)
Food	60	152283.33
Non-food (Education, Cloth, Fuel, Health etc.)	59	92118.64
Farming expenditure (Crops, Fishery, Livestock etc.)	60	126033.33
Others	60	59833.33

Source: Field Survey, 2019

4.17 Household savings of banana cultivators

Saving of the respondents of different occupations was calculated by deducting the corresponding total expenditure from total income of the borrower members. In the study area average annual savings of Banana cultivator were estimated at TK.142188.68 on bank, TK. 81038.46 on insurance, TK. 42923.08 on post-office and TK. 106745.76 on others. (Table 4.11)

Table 4.11. Household savings of banana cultivators

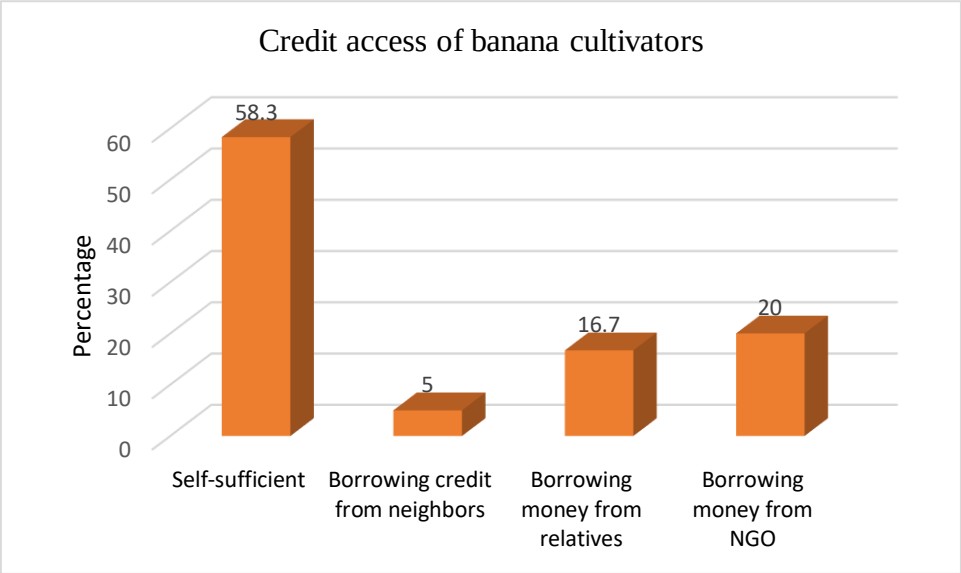
Savings type	No. of banana cultivators	Average savings of banana cultivators (Tk./Family)
Bank	53	142188.68
Insurance	26	81038.46
Post-Office	13	42923.08
Others	59	106745.76
Total	60	93223.88

Source: Field survey, 2019

4.18 Credit access of banana cultivators

The national and local NGO like CARITAS, ASA, BRAC, PKSF provide credit as well as aratdar to the organized poor members for purchase farming equipment's and to continue their livelihood. No household received loan from the government bank because of high interest rate.

Among the 60 respondents in the study area, 58.3% were self-sufficient, 5%, 16.7%, 20% were Borrowing credit from neighbors, borrowing money from relatives and Borrowing money from NGO respectively. (Figure 4.11)

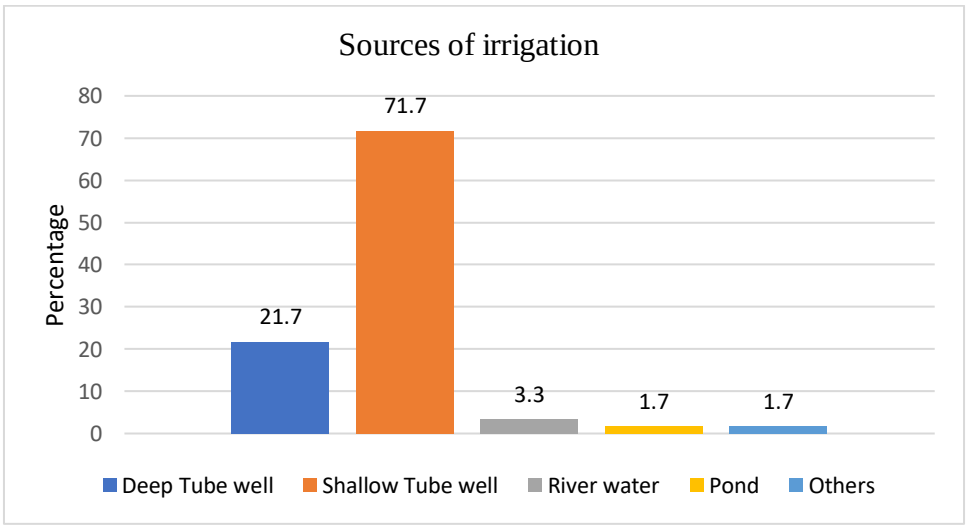


Source: Field survey, 2019

Figure 4.11 Credit access of banana cultivators

4.19 Sources of irrigation of banana growers

Irrigation helps to cultivate crops with the water supply as per need of the crops. Irrigation water improves water conditions in the soil, increases the water content of plant fibers, dissolves nutrients & makes them available to plants. Ultimately it helps in economic development.



Source: Field survey, 2019

Figure 4.12 Sources of irrigation of banana cultivators

In the study area source of irrigation water were categorized in four parts. These were deep tube well, shallow tube well, river water and pond water. Deep tube well water consists of 21.7%, shallow tube well, river water, pond water and others consist of 71.7%, 3.3%, 1.7%, 1.7% respectively. (Figure 4.12)

4.20 Types of crop cultivated on the respondent's land

In the particular study area various types of crop cultivates on the farmer' s land. Table 4.12 showed that 30% farmer cultivated Banana, 50% and 20% farmers cultivated Both Banana and Vegetables and Both Banana and Rice respectively.

Table 4.12. Types of crop cultivated on the respondent's land

Types of crop cultivation land	No. of banana cultivator	% of banana cultivator
Banana	18	30
Both banana and vegetables	30	50
Both banana and rice	12	20
Total	**60**	**100**

Source: Field survey, 2019

4.21 Attachment with farmers' association

An agricultural association is a formal form of farmer collective action for the purpose of marketing and processing of farm products and or for the purchase and production of farm inputs. Agricultural cooperatives also enable farmers to improve product and service quality and reduce risks.

In the study area, around 68.3% farmer were attached with farmer association and rest 31.7% were not attached with farmer association. (Table 4.13)

Table 4.13. Attachment with farmers' association

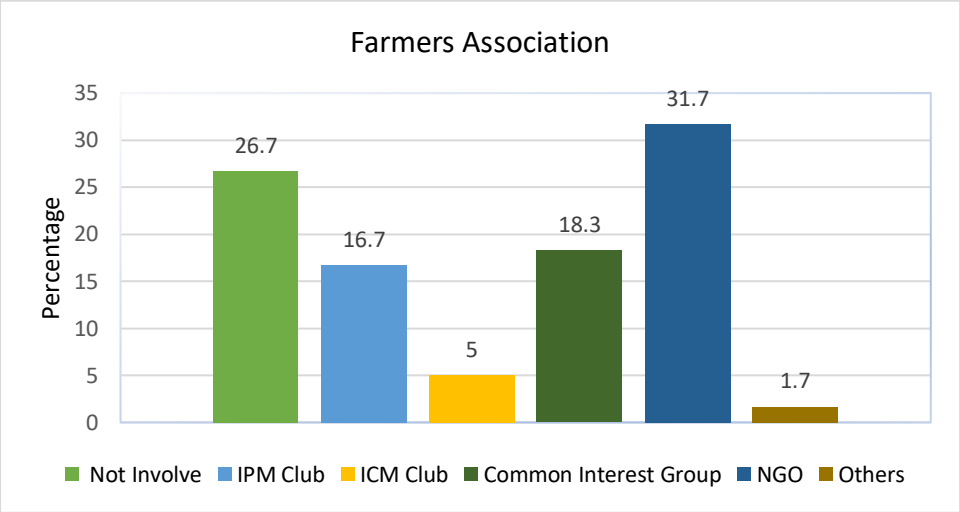
Attachment with farmers' association	No. of banana cultivators	% of banana cultivators
Yes	41	68.3
No	19	31.7
Total	**60**	**100**

Source: Field survey, 2019

4.22 Farmer Association involved with the banana cultivators

Farmers association works with an objective of improving economic condition of its members and for this purpose it aims to provide facilities for better farming, better

business and better living as well as carry out work of common economic interest and benefit to the members.



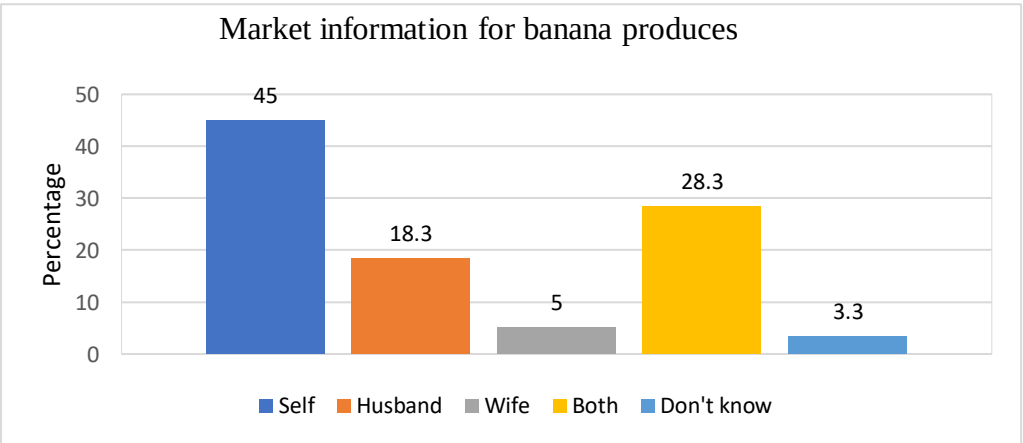
Source: Field survey, 2019

Figure 4.13 Farmer Association involved with the Banana cultivators

Among the 60 respondent 26.7% farmer are not involved with farmer association, 16.7%, 5%, 18.3% and 31.7% were involved with IPM Club (Integrated Pest Management), ICM Club (Integrated Crop Management) and NGO respectively. (Figure 4.13)

4.23 Access to market information for banana produces

Frequency of access to market information of Banana products of the farm households is provided, about 45% respondent access market information by themselves, 18.3%, 5%, 28.3% and 3.3% respondent by husband, wife, both and rest don't know about this. (Figure 4.14)



Source: Field survey, 2019

Figure 4.14 Access to market information for banana produces

4.24 Chi-Squared test

In this analysis, cross tabulations were used to develop the contingency table for categorical variables. Through this analysis, Chi Square test independence was used to determine whether there is a significant relationship between categorical variables or not.

H_0: There is relationship between the variables.

H_1: There is no relationship between the variables.

The objective of this study is to give an overview of the education towards occupation, education towards family size, farmers categories towards variety of banana cultivated and farmers categories towards credit access. It can be done by using cross tabulation analysis and Chi-Square test.

Table 4.14. Distribution of education and occupation of banana growers

Education * Occupation Crosstabulation							
Particulars		Occupation				Total	%
		Agriculture	Business	Service	Others		
Education	Illiterate	12	0	0	0	12	20
	Primary	19	3	1	1	24	40
	Secondary up to SSC	8	3	2	0	13	21.67
	HSC up to Above	4	3	3	1	11	18.33
Total		43	9	6	2	60	100

Table 4.14 shows the contingency table from cross tabulation analysis between variable Education and Occupation. Based on the results, 40% respondents were primary level of education and their occupation were agriculture. 21.67% respondents were secondary up to SSC level of education and their occupation were agriculture. About 20% respondents were illiterate and their occupation were agriculture. And 18.33% respondents were HSC up to above level of education and their occupation were agriculture.

Table 4.15. Chi-square test on education and occupation of banana cultivators

Chi-Square Tests			
Particulars	Value	df	Asymptotic significance (2-sided)
Pearson Chi-Square	14.854[a]	9	.095
Likelihood ratio	17.435	9	.042
N of Valid Cases	60		
a. 12 cells (75.0%) have expected count less than 5. The minimum expected count is .37.			

The analysis yielded a chi square of 14.854 and 17.435 for respective variables (Table 4.15). Its significant level is 0.095, less than 0.1 probabilities and significant at 10% level. Hence, it was concluded that there was less significant relationship between education and occupation.

Table 4.16. Distribution of education and family size of banana growers

Education * Family size of banana growers crosstabulation						
Particulars		Family size of banana growers			Total	%
		Small family (1-5)	Medium family (6-8)	Large family (8-above)		
Education	Illiterate	4	8	0	12	20
	Primary	13	10	1	24	40
	Secondary up to SSC	8	5	0	13	21.67
	HSC up to above	3	6	2	11	18.33
Total		28	29	3	60	100

From the table 4.16, it was showed that, 40% respondents were primary level of education and belongs to small family (1-5). About 21.67% respondents were secondary up to SSC level of education and belongs to small family (1-5). 20% respondents were illiterate and belongs to medium family (6-8). And 18.33% respondents were HSC up to above level of education and belongs to medium family (6-8).

Table 4.17. Chi-square test on education and family size of banana cultivators

Chi-Square tests			
	Value	df	Asymptotic significance (2-sided)
Pearson Chi-Square	8.760[a]	6	.188
Likelihood Ratio	8.529	6	.202
N of Valid Cases	60		
a. 4 cells (33.3%) have expected count less than 5. The minimum expected count is .55.			

The analysis yielded a chi square of 8.760 and 8.529 for respective variables (Table 4.17). Its significant level is 0.188, greater than 0.1probabilities. Hence, it was concluded that there was no significant relationship between education and family size of respondents.

Table 4.18. Distribution of farmer categories and types of banana cultivation

Farmer categories of banana growers * Which type of banana do you cultivate? crosstabulation								
Particulars		Types of Banana cultivation					Total	Percentage
		Sagor	Sabri	Champa	Green cooking	Bangla kola		
Farm categories	Marginal	1	0	2	0	0	3	5
	Small	31	4	8	2	2	47	78.33
	Medium	9	0	0	0	0	9	15
	Large	1	0	0	0	0	1	1.67
Total		42	4	10	2	2	60	100

From the Table 4.18, it was showed that, 78.33% respondents were small farmers and they cultivated Sagor-kola. Around 15% respondents were medium farmers and they cultivated Sagor-kola. 5% respondents were marginal farmers and they cultivated Champa-kola. And 1.67% respondents were large farmers and cultivated Sagor-kola.

Table 4.19. Chi-square test on farmer categories and types of banana cultivation

Chi-Square tests			
	Value	df	Asymptotic significance (2-sided)
Pearson Chi-Square	10.355[a]	12	.585
Likelihood ratio	11.751	12	.466
N of valid cases	60		
a. 17 cells (85.0%) have expected count less than 5. The minimum expected count is .03.			

The analysis yielded a chi square of 10.355 and 11.751 for respective variables (Table 4.19). Its significant level is 0.585, greater than 0.05 probabilities. Hence, it was concluded that there was no significant relationship between farmer categories and type of banana cultivation.

Table 4.20. Distribution of farmer categories and credit access of banana cultivators

Farmer categories of banana growers * Credit access of banana growers crosstabulation							
Particulars		Credit access of banana growers				Total	%
		Self-sufficient	Borrowing credit from neighbors	Borrowing money from relatives	Borrowing money from NGO		
Farm categories	Marginal	0	0	0	3	3	5
	Small	26	3	9	9	47	78.33
	Medium	8	0	1	0	9	15
	Large	1	0	0	0	1	1.67
Total		35	3	10	12	60	100

From Table 4.20, it was showed that, 78.33% respondents were small farmers and self-sufficient in purpose of credit access. Around 15% respondents were medium farmers and self-sufficient in purpose of credit access.5% respondents were marginal and borrowing money from NGO. And 1.67% respondents were large farmers and self-sufficient in purpose of credit access.

Table 4.21. Chi-square test on farmer categories and credit access of banana growers

Chi-Square tests			
	Value	df	Asymptotic significance (2-sided)
Pearson Chi-Square	17.015[a]	9	.048
Likelihood ratio	17.086	9	.047
N of valid cases	60		
a. 12 cells (75.0%) have expected count less than 5. The minimum expected count is .05.			

The analysis yielded a chi square of 17.015 and 17.086 for respective variables (Table 4.21). Its significant level is 0.048, less than 0.05 probabilities. Hence, it was concluded that there was significant relationship between farmer categories and credit access of banana cultivators.

4.25 Estimation of cost of production

Estimation of cost was exclusively necessary for on enterprise costing and subsequently determining the viability of the enterprise from the point of value of farm families. The farmers producing banana had to incur cost for different inputs. For the convenience of analysis, the usual cost items for production of banana are discussed under the following heads

4.25.1 Cost of human labor

In the study area, the wage rate for different farm operations like land preparation, weeding, pesticide application, irrigation, fertilizer application, harvesting, carrying etc. with an average wage rate of Tk. 300 per man-day during the study period. The total average costs of labour were Tk. 87700 representing 23.23% of total cost. (Table 4.22)

4.25.2 Cost of sucker/seeds

There are many varieties of banana, but only one variety which is called “Mehersagar” was cultivated by the selected banana growers in the study area. They used both homes supplied as well as purchased sucker. The farmers had to pay cash for suckers at the

rate of Tk. 10.00 per piece as prevailed in the study area. The total average cost of sucker per acre were Tk. 22900 representing 6.15 % of the total cost (Table 4.22)

4.25.3 Cost of fertilizer

In the study area, farmers used three types of fertilizer namely urea, triple super phosphate (TSP) and muriate of potash (MP) and cow dung (CD) for banana cultivation. Fertilizer costs were determined by the actual marker prices paid by the farmers. The total average cost of fertilizer per acre were Tk. 24000 representing 6.44% of the total cost. (Table 4.22)

4.25.4 Cost of insecticides

Most of the farmers used insecticides in cultivating banana. They used different kinds of insecticides (Bavistin, DD powder, Thiovit etc). The price of the insecticides largely varied from brand to brand. The actual cost of insecticides was used. The total average costs of insecticides per acre were Tk. 34000 representing 9.13% of the total cost. (Table 4.22)

4.25.5 Cost of irrigation

In the study area, banana growers used irrigation water. It may be noted here that the selected farmers had to buy water from the owners of shallow Tube wells and fewer of them had their own. The average costs of irrigation per acre were Tk. 7000 representing 1.88% of the total cost. (Table 4.22)

4.25.6 Cost for bamboo

The growers of all banana cropping patterns usually made three pieces of a full bamboo and each one pieces was used for one banana plant. The average costs of bamboo per acre were Tk. 45000 representing 12.08% of the total cost. (Table 4.22)

4.25.7 Land use cost

Depending on location, soil type, soil quality and topography per acre cost of land use varied in the study area. For this study, the cost of land use was estimated considering the valuation of land at its cash rental rate. The average per acre cash rental value of cropland for the cropping period covering a year was estimated at Tk 75,000 for the growers of banana cultivation. (Table 4.22)

4.25.8 Total cost

The total average costs of banana cultivation were estimated at TK. 372,400 for all farms. (Table 4.22)

Table 4.22. Item wise cost of banana production (per acre) by farmers

Particulars	Price (Tk. Per Acre)	Percentage
A. Fixed cost		
Land cost	75,000	20.14
Total fixed cost	75,000	-
B. Variable cost		
Labor cost	87,000	23.36
Land preparation cost	25,000	6.71
Sucker cost	22,900	6.15
Planting cost	27,500	7.38
Irrigation cost	7,000	1.88
Fertilizer cost (Urea, TSP, MP, Cowdung, etc.)	24,000	6.44
Insecticides cost (Tilt, DDT powder, Thiovit)	34,000	9.13
Bamboo cost	45,000	12.08
Others cost	25,000	6.71
Total variable cost	297,400	79.86
Total Cost (A+B)	372,400	100

Source: Field survey, 2019

4.25.9 Gross return of banana cultivation

Gross return was estimated by multiplying the per acre total quantity of product by their respective prevailing market prices. The average market price of banana was TK. 250 per chori. On the other hand, respective returns from selling of suckers were Tk. 2290 which constituting 4.16% of total returns. (Table 4.23)

Table 4.23. Gross return of banana cultivation

Particulars	Price (Tk. Per Acre)	Percentage
Selling price of banana	527,500	95.84
By product selling price	22,900	4.16
Gross return	**550,400**	**100.00**

Source: Field survey, 2019

4.25.10 Net return

Net return was calculated by deducting total costs from gross return. Table 7 showed that net returns for all banana farms were Tk. 178,000. (Table 4.24)

4.25.11 Benefit cost ration (BCR)

An undiscounted benefit-cost ratio (BCR) is a relative measure, which is used to compare benefits per unit of cost. The BCRs of banana farms were greater than one indicating that banana farming was profitable for the farm. The overall benefit-cost ratio of banana farming came out to be 1.48 indicating that a one-taka investment resulted in a net benefit of Tk. 1.48. (Table 4.24)

Table 4.24. Per acre profitability of banana cultivation

Particulars	Value (Tk.)
Gross return (GR) (Tk.)	550,400
Total Fixed cost (TFC) (Tk.)	75,000
Total variable cost (TVC) (Tk)	297,400
Total cost/Gross cost (TC=TVC+TFC) (Tk.)	372,400
Gross margin (GM= GR-TVC) (Tk.)	253,000
Net return (NR=GR-TC)	178,000
BCR (GR/TC)	1.48

Source: Field survey, 2019

4.26 Marketing of banana

Marketing is defined as the performance of business activities involved in the flow of goods and services from the point of initial production until they are in the hands of ultimate customers, (Khols, 1972). These are performed through specialized agencies that may be either individual or firms which are commonly known as intermediaries or middlemen. All of them performed in the marketing channel.

4.26.1 Marketing system of banana

Marketing system may be thought of as the connecting link between producers and consumers. Marketing of any product is essential to transfer it to the final consumers from widely production points. Agricultural marketing can be defined as comprising of all activities involved in supply of farm inputs to the farmers and movement of agricultural products from the farmers to the consumers (Acharya and Agarwal, 2000).

It is both a physical distribution and an economic bridge designed to facilitate the movement and exchange of commodities from farm to the fork. In countries where agriculture is the principal economic activity, the marketing system becomes more important. Marketing system composed of alternative product flows; marketing channels, a variety firm (intermediaries) and numerous business activities.

4.26.2 Channels of banana marketing

Marketing channels are set of interdependent organizations involved in the process of marketing a product or service available for use of consumption (Monalisa, 2011). A number of intermediaries were found in banana marketing channels. They were Aratdar, Petty trader, Wholesaler and Retailer. They performed the marketing function of buying and selling, assembling, grading, storage, transportation, risk bearing etc. The marketing channel of Banana found in the study areas of Narsingdi district are shown in below.

Channel A: Producers→ Aratdar→ Retailer→ Consumer.

Channel B: Producers→ Wholesaler→ Retailer→ Consumer.

Channel C: Producers→ Petty trader→ Wholesaler→ Retailer→ Consumer.

Channel D: Producers→ Retailer→ Consumer.

Channel E: Producers→ Wholesaler→ Distant wholesaler→ Retailer→ Consumer.

4.26.3 Market intermediaries

The main market intermediaries involved in Banana marketing are briefly discussed below:

4.26.3.1 Producers

Banana marketing channel started from farmers which are producer-sellers. Farmers sell their products in a small quantity to the rural consumers in the local primary market. Usually farmers sold their products to the petty traders in the study area.

4.26.3.2 Petty trader

In the study area petty trader was a professional wholesale trader who used to make his purchase from producer in the local market, bring their consignment to the urban wholesale market and sell them to the wholesaler and arathdar.

4.26.3.3 Wholesaler

The wholesaler handles a large volume and possess more capital. All of the wholesaler are seasonal traders who mainly enter into the business during the peak period. It may be mentioned here that the wholesaler usually buys banana from petty trader and arathdars at local market and take to the markets outside the study area and sell it to the retailers or processors doing business there.

4.26.3.4 Aratdar

Arathdars play a significant role in Banana marketing. They serve as a commission agent who have fixed establishment in the market. They take commission from both the parties in which he exists but generally they do not follow any standard rule to take commission. Their volume of business is larger.

4.26.3.5 Retailer

The Retailers, the last link in the Banana marketing channel, purchased products from aratdar or wholesaler and sold their products to the consumers. Most of them were independently organized and had permanent shop in the market.

4.27 Buyers of banana

In case of small farm petty trader, wholesaler and retailer bought 56.25%, 31.25% and 12.5% respectively. In the medium farm wholesaler bought 100% of bananas. In case of large farm wholesaler and retailer bought both by 50% respectively. Among three categories of intermediaries' petty traders bought higher portion of banana from producers. (Table 4.25)

Table 4.25. Buyers of banana according to their categories.

Items	Farm size						All farm	
	Small		Medium		Large			
	No.	%	No.	%	No.	%	No.	%
Petty trader	18	56.25	-	-	-	-	18	43.90
Wholesaler	10	31.25	3	100	3	50	16	39.02
Retailer	4	12.5	-	-	3	50	7	17.07
Total	32	100	3	100	6	100	41	100

Source: Field survey, 2019

4.28 Distance of markets

This is a distance measured in kilometers to reach the nearest market. The study revealed the infrastructure is generally not satisfactory. If it is comparatively far away to nearby fruit markets, it leads farmers high transport cost. This problem has further

pushed to decrease banana production by the farming households. Average distance between respondents' house to nearest local markets and wholesale markets were found to be 2.55 km and 4.62 km respectively in three village (Table 4.26)

Table 4.26. Distance of markets

Distance of banana market (Km)	No. of banana cultivator	Average distance (Km)
Distance of Local Market (Km)	60	2.55
Distance of Wholesale Market (Km)	60	4.62

Source: Field Survey, 2019

4.29 Mode of transportation used to the banana cultivators

Mode of transportation depends on the distance of cultivating point to selling point. In the study area, Table 4.23 shows that 16.7% respondent depend on rickshaw, 60%, 16.7%, 3.3% and 3.3% depend on van, pick up, rented truck and others respectively. (Table 4.27)

Table 4.27. Mode of transportation used to the banana cultivators

Mode of transportation used	No of banana cultivators	% of banana cultivators
Rickshaw	10	16.7
Van	36	60
Pick up	10	16.7
Ranted truck	2	3.3
Others	2	3.3
Total	**60**	**100**

Source: Field Survey, 2019

4.30 Per sori cost of the farmer

From the table we saw that, per sori cost of banana by small, medium and large farmer was Tk.148, Tk. 162 and Tk.155 respectively and minimum as Tk. 98, Tk. 89 and Tk. 100 respectively. The mean value of per sori cost was Tk. 124.54, Tk. 127.91 and Tk. 126.99 respectively. (Table 4.28)

Table 4.28. Per sori cost of banana cultivators

Types of farmer	Mean	Number	Minimum	Maximum
Small	124.54	22	98	148
Medium	127.91	20	89	162
Large	126.99	12	100	155
Total	126.33	54	89	162

Source: Field Survey, 2019

4.31 Marketing cost of banana intermediaries

Marketing cost of banana refers to the various expense of different intermediaries for movement of the product through the marketing channel. Different items of costs such as labor charge (loading, unloading, assorting, grading etc.), tolls and taxes of transportation, cost due to spoilage, commission of aratdars, establishment, personal expenses and others were incurred by the banana intermediaries, operating areas etc. The item wise marketing cost per eighty bananas were shown below.

Table 4.29. Marketing cost of banana intermediaries (per eighty banana)

Cost of items	Aratdar	Petty trader	Wholesaler	Retailer	All average
Transportation	4.5	4.75	5	1.75	4.00
Loading and unloading	1.85	1.62	1.2	1	1.42
Wastage	5	6	3	1	3.75
Personal Expense	0.85	0.6	0.45	2.5	1.10
Rent	1.5	0.8	1.45	2.5	1.56
Tax	1.85	1.5	1.5	1.5	1.59
Security	0.95	0	0	0	0.24
Electricity	1.85	0	0	0.5	0.59
Mobile bill	2.5	4	2	2	2.63
Others	1.5	1.85	1.45	0.75	1.39
Total	22.35	21.12	16.05	13.5	18.26

Source: Field Survey, 2019

From the table we observed that on an average the marketing cost per eighty banana was Tk. 18.26 where the share largest of transportation cost was Tk. 4.00 of total marketing costs and cost of wastage was the second largest cost was Tk. 3.75 followed by cost due to mobile bill was Tk. 2.63 and then tax, rent, loading and unloading, others and last of all security. Marketing cost was highest for aratdar was Tk. 22.35 per eighty banana and transportation cost was the major part for aratdar. The marketing cost for petty trader, wholesaler and retailer was Tk. 21.12, Tk.16.05 and Tk.13.50 respectively. (Table 4.29)

4.32 Marketing margin of intermediaries

A marketing margin is the difference between the purchase price and the price received on resale. The total marketing margin is defined as the difference between the prices paid by the consumer and received by the producer.

Table 4.30. Gross marketing margin of intermediaries (per eighty banana)

Intermediaries	Purchase price	Sale price	Gross margin
Aratdar	265	300	35
Wholesaler	225	270	45
Petty trader	170	210	40
Retailer	280	330	50

Source: Field Survey, 2019

Table shows that, petty trader purchased from farmers directly at farm yards at Tk. 170 per eighty and sold to wholsalers at Tk. 210 per eighty banana. Aratdar purchased from wholesalers or petty trader at the local market at Tk. 265 per eighty banana and sold to wholesalers, retailers or others at Tk. 300 per eighty banana. Wholesaler purchased from petty trader at Tk. 225 per eighty banana and sold it to at Tk. 270 per eighty banana. Retailer purchased from petty trader or wolesalers at Tk. 280 per eighty banana and sold it Tk. 330 per eighty banana. The gross margin of aratdar, wholesaler, petty trader and retailer was Tk. 35, Tk. 45, Tk. 40 and Tk. 50 respectively. Retailer was the last intermediary of marketing channel. They were directly involved with customer. So retailer achived higher gross margin. (Table 4.30)

4.33 Net marketing margin of intermediaries

Table 4.31. Net marketing margin of intermediaries (per eighty banana)

Intermediaries	Purchase price	Sale price	Gross margin	Marketing cost	Net margin
Aratdar	265	300	35	22.35	12.65
Wholesaler	225	270	45	16.05	28.95
Petty trader	170	210	40	21.12	18.88
Retailer	280	330	50	13.5	36.5

Source: Field Survey, 2019

The net marketing margins of the different group of intermediaries were obtained by deducting marketing costs from their marketing margins. Net margin of aratdar, wholesaler, petty trader and retailer were Tk. 12.65, Tk. 28.95, Tk. 18.88 and Tk. 36.5 respectively. The marketing cost was lowest for retailer and wholesaler and their gross margin were higher than other intermediaries. So, the net margin was highest for retailer and wholesaler. (Table 4.31)

4.34 The problems of banana producer in production and marketing

Farmers were asked whether they faced any acute problem in producing banana. Most of the farmers faced the same kind of problems during banana production. It may be noted that problems confronted by the individual farmers were not identical for the enterprise. Some problems were in fact more severe than others. However, in this section an attempt has been made to identify some major problems of banana production as reported by the farmers growing banana in the study villages.

Table 4.32. The problems of banana producers in production and marketing

SL. No	Problems	No. of Banana Cultivator	% of Banana Cultivator
1	Shortage of improved variety	6	10
2	Lack of latest technical knowledge	9	15
3	Scarcity of labor during peak period	21	35
4	Insect and disease infestation	23	38.4
5	Problem of high value of seed	12	20
6	Problem of sufficient irrigation	15	25
7	Crop damage due to environmental factor	17	28.3
8	Dependence on middle man for disposal	6	10
9	Lack of awareness about market information	4	6.7
10	Due to high transportation charges	8	13.3

Source: Field survey 2019

As per the table 4.32 the first and major problem faced by farmers in study area is problem of insect and disease is reported by 38.4% of sample farmers. Since banana is a labor-intensive field crop, shortage of human labor is one of the major problems for growing banana, especially during the time of transplanting period. About 35% sampled farmer in study area is scarcity of labor during peak period. Banana crop highly affected from Crop damage due to environmental factor about 28.3 % of sample farmers felt these types of problem. Banana crop required high irrigation which is affected due to power cut in study area, 25% farmer faced the problem of sufficient water.

Lack of good quality high yielding verity seed appeared to be a limiting factor in cultivating banana in the study area. Most of the farmers purchased this input from their neighboring farmers/relatives/traders but they opined that in many cases sucker/seeds were not of good quality and the rate of mortality was quite high. So, it is necessary to

get higher production of crop and this problem is reported by 20% of sample farmers. To get higher production and productivity is important to the package of practices of banana cultivation but due to un sufficient support to provide technical knowledge is a constraint which is reported by 15% of sampled farmers. 13.3% of the farmers faced the transportation problem in the study area. Due to bulk production farmers are highly depend on middleman to sell their produce about 10% of the sampled farmers says that dependency on middleman is a major constraint in marketing of banana. Another constraint which is reported 10 % sampled farmer in study area is shortage of improved variety. To get maximum price for their crop farmer need regulated cooperative association and its necessary to get in touch of updated market news 6.7% of sampled farmers faced the problem of less information about market information.

CHAPTER 5

SUMMARY, CONCLUSION AND RECOMMENDATIONS

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SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Summary

In order to make an assessment on socio-economic status and marketing of banana cultivators in Narsingdi district, this study was conducted in selected area of Narsingdi district. The study area and sample units were selected keeping in mind the objectives of the study. Study area should be selected carefully and tactfully so that they serve to fulfill the specific research objectives. In the study area, there were 60 (Sixty) Banana cultivars comprising of younger, middle aged and elderly experienced farmers.

Primary data had been collected by simple random sampling method with the help of face to face interview schedule. Besides, other necessary information had been collected from various research documents and papers like Statistical Yearbook of Bangladesh, Yearbook of Agricultural Statistics, Bangladesh Economic Review, The national and international journals, articles and publications and Internet.

For analytical purpose, Descriptive statistics like average, percentage etc. were followed to analyze the data to achieve the objectives of the study. Raw data were inserted in computer using the concerned software SPSS-21(Statistical Package for the Social Science) and done Chi-square test to assess the relationships between the variables.

From the socio-economic analysis, it was found that there were 95% of male and rest 5% were female respondent in the study area. Among the 60 farmers 18.3% belong to 30-40 and 35%, 36.7%, 8.3% and 1.7% belong to 40-50, 50-60, 60-70, 70-80 age distribution respectively. In the study area, 20% were illiterate, major part is primary were 40%, secondary up to SSC were 22% and HSC up to Above level of education were 18% respectively. It could be said that majority of the respondent is primarily educated. In all categories, respondents who were associated with agriculture, business, service and others were 71.70%, 15%, 10% and 3.30% respectively.

The family performs various valuable functions for its members. In the banana cultivators of the study area it was found that, about 5% banana cultivator family were wife headed, 80% and 15% family were husband headed and joint headed family

respectively. it was also related that, average no of male members was 2.77, average no of female members was 2.85 and average no of working members was 1.58. About 47% banana cultivator family were small, 48% and 5% family were medium and large family respectively.

In rural areas banana cultivators in the study area shows that, housing is done mainly on land owned privately by the individual or that was inheritance. From the study, it was showed that 17% belongs to Ktcha, 31%, 45% and 7% belongs to Tin Shed, Half Building and Building respectively.

In rural areas most of the people use tube well water that is considered hygienic. In this studied area 95% of Banana cultivator use tube well water and rest of 5% use pond water.

Poor sanitation can cause infectious disease such as cholera, typhoid and dysentery. it was found that 23.3% use katcha toilets, 66.7% and 10% respondents use Semi Pucca toilets and Pucca toilets respectively.

In the study area most of the respondents were going to Upazila Health Complex because of increasing awareness among them by different public and private organization. Dependency on unskillful and unprofessional local quacks was decreasing. It was found that, 23.3% dependent on local quacks and 26.7%, 38.3% and 11.7% were dependent on village doctors, Upazila Health Complex and MBBS Doctors respectively.

Training on Banana cultivation were very important in the study because of impacting technical knowhow to the farmers. 18.3% people take the training facilities but 81.7% of people did not take the training facilities. Respondents experience was gathered by inheritance or by training. In the study area, Table 4.12 shows that average years of Banana cultivation is 17.38.

Popular variety among the cultivators were, 70% of sagor-kola, 6.7%, 16.7%, 3.3% and 3.3% were sabri-kola, champa kola, Green cooking kola and Bangla kola respectively.

Land is the original source of all material things. In the study area it was found that, average total land of respondent was 1.84 acres, average cultivated land was 1.64 acres and average banana cultivated area was .85 acres. Also 5% of the respondents were marginal, 78.3%, 15%, 1.7% were small, medium and large famers.

Income substantially influences the household economic and expenditure behavior both theoretically and empirically. It was showed that average annual agricultural income estimated as 108596.49 TK. from others crop, 152631.58 TK. from livestock, 65789.47 TK. from fishery and 145357.14 TK. from others. On the other hand, it was showed that average annual non-agricultural income estimated as 46500.00 TK. from land rent, 106000.00 TK. from house rent, 180000.00 TK. from wage/salary and 221953.49 TK. from others.

Household expenditure of Banana growers, in the study area average annual expenditure of Banana cultivator was estimated as 152283.33 TK. on food, 92118.64 TK. on non-food (Education, Cloth, Fuel, Health etc.), 126033.33 TK. on farming expenditure (Crops, Fishery, Livestock etc.) and 59833.33 TK. on others.

Saving of the respondents of different occupations were average annual savings of Banana cultivator were estimated at TK.142188.68 on bank, TK. 81038.46 on insurance, TK. 42923.08 on post-office and TK. 106745.76 on others.

Credit accessibility of respondent showed that, 58.3% were self-sufficient, 5%, 16.7%, 20% were Borrowing credit from neighbors, borrowing money from relatives and Borrowing money from NGO respectively.

Irrigation helps to cultivate crops with the water supply as per need of the crops. Deep tube well water consists of 21.7%, shallow tube well, river water, pond water and others consist of 71.7%, 3.3%, 1.7%, 1.7% respectively. Also, 30% farmer cultivated Banana, 50% and 20% farmers cultivated Both Banana and Vegetables and Both Banana and Rice respectively.

Table 4.14 shows that there was less significant relationship between education and occupation. Also, no significant relationship between education and family size of respondents. It also no significant relationship between farmer categories and type of banana cultivations but significant relationship between farmer categories and credit access of banana cultivators.

Agricultural cooperatives also enable farmers to improve product and service quality and reduce risks. In the study area, around 68.3% farmer were attached with farmer association and rest 31.7% were not attached with farmer association. Among the 60 respondent 26.7% farmer are not involved with farmer association, 16.7%, 5%, 18.3%

and 31.7% were involved with IPM Club (Integrated Pest Management), ICM Club (Integrated Crop Management), Common Interest Group and NGO respectively.

In case of small farm petty trader, wholesaler and retailer bought 56.25%, 31.25% and 12.5% respectively. In the medium farm wholesaler bought 100% of bananas. In case of large farm wholesaler and retailer bought both by 50% respectively. Among three categories of intermediaries' petty traders bought higher portion of banana from producers.

It was estimated that average annual total cost of production of banana was TK. 372,400, while gross return and net returns per farm were Tk. 550,400and Tk. 178,000 respectively. The overall benefit cost ratio of banana farming came out to 1.48 indicating that one Taka investment resulted in a net benefit of Tk.1.48.

From the table we saw that, per sori cost of banana by small, medium and large farmer was Tk.148, Tk. 162 and Tk.155 respectively and minimum as Tk. 98, Tk. 89 and Tk. 100 respectively. The mean value of per sori cost was Tk. 124.54, Tk. 127.91 and Tk. 126.99 respectively.

Marketing cost was highest for aratdar was Tk. 22.35 per eighty banana and transportation cost was the major part for aratdar. The marketing cost for petty trader, wholesaler and retailer was Tk. 21.12, Tk.16.05 and Tk.13.50 respectively.

The gross margin of aratdar, wholesaler, petty trader and retailer was Tk. 35, Tk. 45, Tk. 40 and Tk. 50 respectively. Retailer was the last intermediary of marketing channel. They were directly involved with customer. So retailer achived higher gross margin.

Net margin of aratdar, wholesaler, petty trader and retailer were Tk. 12.65, Tk. 28.95, Tk. 18.88 and Tk. 36.5 respectively. The marketing cost was lowest for retailer and wholesaler and their gross margin were higher than other intermediaries. So, the net margin was highest for retailer and wholesaler.

The study identified some problems faced by the farmers in the study area. The top five major problems were insect and disease infestation, scarcity of labor during peak period, crop damage due to environmental factor, problem of sufficient irrigation & problem of high value of seed.

5.2 Conclusion:

The study was conducted to socio- economic status and marketing system of banana cultivators in narsingdi district. The socio-economic characteristics of the farmer revealed that majority of the farmers had primary level of education. It was found that most of the farmers of banana cultivators had 17.38 average years of farming experience. Additionally, it was also found in the study that the 78.3% were small farmers. The study also revealed that average annual expenditure and average household savings were Tk. 126033.33 and Tk. 93223.88 respectively. Furthermore, there was statistically less significant relationship between education and occupation also between education and family size, farmer categories and types of banana cultivation respectively but significant relationship between farmer categories and credit excess of banana cultivators. It was estimated that average annual total cost of production of banana was TK. 372,400, while gross return and net returns per farm were Tk. 550,400and Tk. 178,000 respectively. The overall benefit cost ratio of banana farming came out to 1.48 indicating that one Taka investment resulted in a net benefit of Tk.1.48. The marketing cost for petty trader, wholesaler and retailer was Tk. 21.12, Tk.16.05 and Tk.13.50 respectively. Retailer was the last intermediary of marketing channel. They were directly involved with customer. So retailer achived higher gross margin TK 50. The marketing cost was lowest for retailer and wholesaler and their gross margin were higher than other intermediaries. So, the net margin was highest for retailer and wholesaler Tk 36.5 and 28.95 respectively. The major problem found in the study was insect and disease infestation.

5.3 Recommendations

Based on the findings of the study, some policies and recommendations may be advanced which are likely to be useful for policy formulation.

- Positive steps should be taken for improving transport and marketing facilities in the study area such as infrastructure development like building new and construction of poor road and culvert. Government can make store house in rural areas near farmers' fields which may help them to store their products.

- The major constraint to high production of banana is the scarcity of high yielding variety in the study area. So, good quality high yielding variety should be made available to the door steps of the farmers at a reasonable price in time.
- Government should improve its method of gathering and dissemination of information that is vital for households; this also requires government to increase its current level of training and services.
- The government should encourage private sector to invest in credit facilities like banks to offer credit to farmers at affordable rates. This should be through legislation to facilitate credit creation.
- Additional educational facilities should be built in the study area to ensure their increased participation in economic activities. The agricultural extension officers should provide more training and information by field visit, arranging agricultural program. They encourage farmers to apply new technologies and new method of cultivation by demonstrating directly to the farmers and telling the benefits of it.
- Necessary policy should be made in national level and their implementation must be ensured to improve their livelihood. By doing so, it can be ensured that the farmer could be able to spend more in purchasing food, health service sector as well as in farming activities, which in turn will enhance our national capital stock.

However, the study was conducted in a limited area of an upazila taking a very limited number of respondents. Therefore, the findings of this study should be interpreted with considerable caution to generalize for the country as a whole. Inspite of the above-mentioned limitations, some of the findings of the study may cautiously be used in providing important clues and information for decision makers and other users.

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Appendix

An Interview Schedule

DEPARTMENT OF DEVELOPMENT AND POVERTY STUDIES

SHER-E-BANGLA AGRICULTURAL UNIVERSITY

DHAKA 1207

An Interview Schedule for a Research Study Entitle

"SOCIO- ECONOMIC STATUS AND MARKETING OF BANANA CULTIVATION IN NARSINGDI DISTRICT"

Serial No: ☐

Respondent Name ☐

Village: ☐ **Union**: Gazaria **Upazila**: Palash **District**: Narsingdi

1. Gender: **1.** Male **2.** Female **2. Age:** ☐ **3. Education:** ☐

4. Marital Status: **1.** Married **2.** Single **3**. Divorced **4.** Widow

5. Religious Status: **1**. Muslim **2.** Hindu **3**. Others

6. Occupation: **1.** Agriculture **2.** Business **3.** Service **4.** Others

7. Family head: **1**. Wife headed **2.** Husband headed **3**. Joint headed

8. Family Details:

SL	No of male members	No of female members	Total working members
1.			

9. Family size of Banana growers

1. Small family (1-5) **2.** Medium family (6-8) **3.** Large family (8-above)

10. House Dwelling unit ownership **1**. Owned **2.** Ranted **3.** Others

11. Housing Condition of Banana growers

1. Ktacha **2.** Tin Shed **3.** Half Building **4.** Building **5.** Others

12. Source of drinking water **1**. Pond **2.** Tube Well **3**. Supply **4.** Others

13. Drinking water facility enjoyed by Banana growers

1. Own **2.** Government **3.** Neighbor **4**. Others

15. Sanitation facilities of Banana growers

1. Katcha **2.** Semi Pucca **3.** Pucca **4**. Others

16. Health Facilities of Banana Cultivators

1. Local quacks **2.** Village Doctor **3**. Upazila Health Complex **4.** MBBS Doctors **5.** Others

17. Do you take any tranning on Banana cultivation **1.** Yes **2.** No

18. How many years you are associated with Banana cultivation…….

19. Which type of Banana do you cultivate?

1. Sagor **2.** Sabri **3.** Champa **4.** Green cooking **5.** Bangla kola **6.** Others

20. Total Land of respondents……. Acres

21. Cultivable Land of respondent…….……. Acres

22. Banana cultivated area of respondent……. Acres

23. Farmer categories of Banana growers: **1**. Marginal **2**. Small **3.** Medium **4.** Large

24. Income of Banana Growers

SL	Agricultural Income	TK	Non-Agricultural Income	TK
1.	Others crop		Land Rent	
2.	Livestock		House Rent	
3.	Fishery		Wage/Salary	
4.	Others		Others	

25. Annual income by cultivating banana…….TK

26. Household expenditure (Tk/Family/Annual)

Sl No	Expenditure type	Annual (Tk)
1.	Food	
2.	Non-food (Education, Cloth, Fuel, Health etc)	
3.	Farming expenditure (Crops, Fishery, Livestock etc)	
4.	Others	

27. Household savings (Tk/Family/Annual)

Sl No	Savings type	Annual (Tk)
1.	Bank	
2.	Insurance	
3.	Post-Office	
4.	Others	

28. Credit access of Banana growers

1.Self-sufficient **2.** Borrowing credit from neighbors **3.** Borrowing money from relatives **4.** Borrowing money from NGO

29. Different sources of irrigation of sample farmers

1. Deep Tube well **2.** Shallow Tube well **3.** River water **4**. Pond **5**. Others

30. Types of Crop cultivated on the respondent's land

1.Banana **2.** Rice **3.** Vegetables **4.** Both Banana and Vegetables **5.** Both Banana and Rice **6.** Others

31. Per sori cost of banana cultivators …….TK

32. Marketing cost of banana intermediaries (per eighty banana)

Cost of items	Aratdar	Petty trader	Wholesaler	Retailer	All average
Transportation					
Loading and unloading					
Wastage					
Personal Expense					
Rent					
Tax					
Security					
Electricity					
Mobile bill					
Others					
Total					

33. Gross marketing margin of intermediaries (per eighty banana)

Intermediaries	**Purchase price**	**Sale price**	**Gross margin**
Aratdar			
Wholesaler			
Petty trader			
Retailer			

34. Net marketing margin of intermediaries (per eighty banana)

Intermediaries	Purchase price	Sale price	Gross margin	Marketing cost	Net margin
Aratdar					
Wholesaler					
Petty trader					
Retailer					

35. What is the distance of local and whole sale markets from your house?

SL No	Market	Distance (km)
1.	**Local Market**	
2.	**Wholesale Market**	

36. Item wise cost of banana production (per acre) by farmers

Particulars	Price (Tk. Per Acre)	Percentage
A. Fixed cost		
Land cost		
Total fixed cost		
B. Variable cost		
Labor cost		
Land preparation cost		
Sucker cost		
Planting cost		
Irrigation cost		
Fertilizer cost (Urea, TSP, MP, Cowdung, etc.)		
Insecticides cost (Tilt, DDT powder, Thiovit)		
Bamboo cost		
Others cost		
Total variable cost		
Total Cost (A+B)		

37. Are you attached with any farmers' association? 1. Yes 2. No

38. Gross return of banana cultivation

Particulars	Price (Tk. Per Acre)	Percentage
Selling price of banana		
By product selling price		
Gross return		

39. If yes, Which organization?

1.IPM Club **2.** ICM Club **3.** Common Interest Group **4.** NGO **5.** Others

40. Which Mode of transportation used to bring Banana bunch in the market by farmers?

1. Rickshaw **2.** Van **3.** Pick up **4.** Ranted truck **5.** Others

41. Do you access to market information for Banana produces?

1. Self **2.** Husband **3.** Wife **4**. Both **5.** Don't Know

42. The problems of banana producer in production and marketing

SL	Problems	Yes	No
1	**Shortage of improved variety**		
2	**Lack of latest technical knowledge**		
3	**Scarcity of labor during peak period**		
4	**Insect and disease infestation**		
5	**Problem of high value of seed**		
6	**Problem of sufficient irrigation**		
7	**Crop damage due to environmental factor**		
8	**Dependence on middle man for disposal**		
9	**Lack of awareness about market information**		
10	**Due to high transportation charges**		

Thanks for Your Co-operation