PROFITABILITY ANALYSIS OF CUT FLOWERS- BASED ON ROSE

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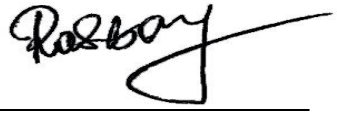

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CERTIFICATE

This is to certify that the thesis entitled, **"PROFITABILITY ANALYSIS OF CUT FLOWERS- BASED ON ROSE".** 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 BUSINESS ADMINISTRATION IN MARKETING,** embodies the result of a piece of bona fide study work carried out by **M. K. HASAN, REGISTRATION NO. 10-4107** 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 the course of this investigation has duly been acknowledged.

Dated:

Place: Dhaka, Bangladesh

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Dedicated to

My

Beloved Parents

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ABSTRACT

This paper attempts to study the monthly income of rose farmer's in Bonogram, Savar of Dhaka district. Rose cultivation is now a profitable enterprise to the farmers, but the socio-economic data and information of the flowers' are very scarce in Bangladesh. So, the present study is conducted to identify and analyze the profitability of rose relative profitability, potentialities and constraints. Three villages (Bonogram Purbopara, Bonogram moddhopara and Sadullapur) of Savar Upazila under Dhaka District were selected as study area. Purposive and simple random sampling techniques were taken into consideration. A total of 50 rose farmers were randomly selected for this study. In this study, both descriptive and statistical tools are used to analyze the data.

In this study it found that 88% respondents were married, 10% unmarried and 2% widower. Age of farmers play a crucial role in flowers production and in better management. 60% of the respondents were 31 to 40 years old. Family members were categorized into three groups and these were less 4 (6%), 4 to 6 (52%) and 7 to above (42%). 44% of the respondents were in primary level which was the maximum educational percentage of the study of the selected area. The highest proportion of family members had only one earner and the percentage was 60. Most of the farmers were involved in rose cultivation (84%). Few respondents were cultivated gladiolas, gerbera and a few involved in livestock production in the selected area. Input seedlings are the main investment of a farmer. They mainly bought their seedlings from local nursery (74%) and some seedlings were grown by themselves. Initial investment is the vital factor for any successful business.

The highest profit is obtained from rose cultivation compared to its competitive flowers like gladiolus, gerbera and others for rose. Human labor, flowers variety, input seedling, initial investment and market place has positive effect on the monthly income of rose farmers. Lack of technical knowledge, non-availability of HYV seedling, and infestation of insects and diseases are major problems found in rose cultivation. Government should take necessary steps to overcome these problems.

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ABBREVIATIONS AND ACRONYMS	
BBS	Bangladesh Bureau of Statistics
et al.	Et alia (and others)
SSC	Secondary School Certificate
HSC	Higher Secondary School Certificate
NO.	Numbers
SPSS	Statistical Package for Social Science
NGO	Non Government Organization
SCM	Supply Chain Management
EPB	Export Promotion Bureau
HYV	High Yielding Variety
%	Percentage

CHAPTER-I

INTRODUCTION

1.1 Background of the study

Roses, the "Queen of the Flowers," have been enjoyed for thousands of years. Their cultivation dates back to at least Greek and Roman times. Many varieties are descendants from ancient garden plants in China, Persia, and Turkey.

The Mughal Samrat Nasir Uddin Mohammad Babar introduced the Persian or Damask rose (*Rosa damascena*) in India in 1526. The scented rose (*Rosa barbouniana*) was introduced in 1840 during the British rule. These two species of rose are scented and are cultivated in India to a large extent. Rose, botanically identified as Rosa spp., is indigenous to Europe and is widely distributed in Europe. Also, disseminated in the Middle East countries, especially Iran, Afghanistan and Turkey. It is also grown in Bulgaria, Russia, Egypt, France, Morocco and India. There are several varieties of rose classified according to color, size, type, use etc. The following varieties as per color are light pink- confidence, navneet, pink- first prize, pink peace, surekha, red or crimson - gladiator, red masterpiece, lavender- blue moon, multicolours-candy strips, sultana. The varieties as per the types are bush first prize, superstar, tree rose hybrid Tea, floribunda, rambler and climber-casino, golden shower, crimson glory, hedges- edges: - queen, magic, cutflowers- superstar, gladiator, arjun, pot plants -cinderella. The varieties as per use are Oil- *Rosa damascena*, gulkand-*Rosa damascena*, *Rosa chinensis*.

In Bangladesh, small scale flower production initially started in late seventies by some innovative farmers with the production of tuberose but large scale commercial production was started in mid eighties in Jhikargacha Upazila of Jessore district (Sultana, 2003). And flower farming first started in Savar back at the end of the 90s. The most common, commercially grown cut-flowers species in Bangladesh are rose, tuberose, marigold, gladiolus, chrysanthemum, carnation, gerbera, lily, gypsophila, heliconia, anthurium and orchids.

Bangladesh is well suited for cut-flowers production due to its favorable climate and other conditions such as scope to expand cultivation in unutilized homestead lands, cheap labour, relatively low capital investment and good prospect for exports. Cultivation of flower is reported to give 3-5 times and 1.5-2 times more returns than rice and vegetable cultivation, respectively (Dadlani, 2003). At present, 10,000 hectares of land covers flower cultivation taking the lead by Jessore district. More than 5,000 farmers are growing flower and foliage in the country and about 1.5 lac people are directly or indirectly involved in floriculture business as their sole livelihood (Chowdhury, 2010). The major production areas of cut-flowers are Dhaka, Chittagong, Cox's Bazar, Jessore, Chuadanga, Jhenidah, Bogra, Rangpur, Kushtia and Mymensingh and the present total area under cultivation of different cut-flowers and foliages is about 3350 hectares (Miah *et al*., 2015).

1.2 Objectives of the study

The objectives of this study are given below-

a) to identify socio – economic characteristics of the rose farmers in the study area.
b) to detect the existing marketing channel of rose in the study area.
c) to find out the value chain opportunities of rose in the study area.
d) to analyze the relationship between the variables that affects rose farmer's income in the study area.
e) to depict the factors affecting in rose marketing in the selected area.
f) to determine the problems and recommendation for rose market development in the study area.

1.3 Significance of the study

Rose has become a part and parcel of the life. It is connected with all phases of life of the human beings. Rose are grown on a large scale for cut flowers and on small scale for planting shrubs, bushes, standard rose, climbers ramblers, edges, rockeries in the garden and pot plants for decorating the houses. There is a considerable demand for rose flowers for making garlands, bouquets and floral decoration.

Rose is a perennial erect shrub with beautiful sweet scented flowers valued for worship, making garlands and preparation of rose oil, rose water, rose attar and rose otto. Rose oil is one of the oldest and most valuable perfumery raw materials. It imparts characteristic fragrant top notes to perfumes. The extracted absolute adds lasting notes. A mixture of distilled oil and extracted absolute combines the advantages of both the products. Also vitamin C, A, B2, K and E are extracted from rose. Bulgarian rose oil is being used for flavoring certain types of tobacco, particularly snuff and chewing tobacco and in number of fruit flavors. Limited quantities of otto are employed in flavoring soft drinks and alcoholic liquors. Rose water has been valued for use in making syrups and medicinal preparation from ancient time. At marriages and other social functions rose water is sprinkled on the guests. Rose jam of unani medicine is used as a mild laxative and tonic. With the availability of cheap or synthetic substitutes like geraniol , the use of rose for perfumery purpose has declined.

1.4 Rationale of the study

Bangladesh has experienced a significant export growth despite many hindrances; namely the world economic recession and domestic political uncertainty. However, export of agro-based products is not as considerable as other manufacturing products. The export policy portrays the strategies taken by the government to ensure the efficiency in export business. Cut flower is one of the items which come under special development sector, and there are many incentives and plans to enhance the growth of cut flower and foliage export to different countries. Not many studies have been done concerning this prospective industry of Bangladesh. Although few studies have been conducted in this sector, none of them focuses on identification of challenges and propositions for this industry. This study will present a clear picture of business opportunity of cut flower in domestic market as well as global market. The study also highlights the contribution of government to this business. This paper would have significant roles to play in shaping the future of cut flower industry in Bangladesh and encourage new entrepreneurs to come up with new ventures in the export business of cut flower and foliage. This study would also open up further research avenues for both government research and private sector research works.

Cut-flowers business is growing rapidly in this country but the farmers; in general, face constraints of limited varieties, pest infestation, poor marketing and high postharvest spoilage occurred at different stages starting from harvesting to transportation. They need technological support for higher productivity, better marketing linkage, minimizing postharvest loss through improved packaging and transportation. Research and development activities in floriculture are far from existing demand of technology. Therefore, if the flower industry is explored by farmers, traders, exporters and policy makers it can significantly contribute to the national economy by earning foreign exchange, generating employment and increasing GDP. Many studies thus attempt to cover the whole agri-business structure of cut-flowers as a commercial product. It may provide valuable information to the farmers, different intermediaries, policy makers of the Government and NGOs to formulate policy aimed at increasing production and marketing of cut-flowers.

1.5 Outline of the study

This thesis contains a total of 11 chapters which have been organized in the following sequences. Chapter 1 includes introduction. The review of literature is presented in chapter 2. Methodology of the relevant study is discussed in chapter 3. Chapter 4 is about socio-demographic profiles of rose farmers. Chapter 5 contains existing marketing channel of the selected area. Chapter deals with value chain opportunities of rose in selected area. Chapter 7 describes the relationship between variables that affect rose farmer's income. Chapter 8 presents the identification of factors in rose marketing. Finally chapter 9 represents conclusion and recommendation to increase the income of rose farmers. And chapter 10 and 11 represent references and appendices respectively.

CHAPTER-II

REVIEW OF LITERATURE

Review of literature in any research is essential because it provides a scope for reviewing the stock of knowledge and information relevant to the proposed research. But there is little information regarding knowledge and information relevant to the present research. Literature and research of the major past works in connection with the present study were searched because this knowledge and information provide guideline in designing the future research problem and validation of the new findings. Some studies relating to floriculture along with rose are reviewed here.

Hossain and Rahman (1994) conducted a study on the potential of rose marketing in Dhaka city. They analyzed the existing marketing system of flowers in Dhaka city from the view point of demand and supply and also examined its future prospect. The findings of the study indicate some important characteristics of flower business. The capital investment in flower business has been increasing, the total number of shop exhibits an increasing trend, merchandizing pattern have been diversified, the scale of flower made products is rising and all sales are for cash.

Sultana (1995) completed a study on rose marketing in Dhaka city. She analyzed the marketing systems, buyer's acceptability; problems involved and offered suggestions for improving the present marketing system of flowers in Dhaka City with 30 shops and 30 flower users. She identified monthly Gross Margin of large, medium and small traders. The author also identified major problems of flower traders and mentioned some measurers for solution of the problems.

Mou (2006) completed a study on commercial production and marketing of flower in Bangladesh. She attempted to examine the profitability and gross margin of flower visa-vis its competing crops. Per hectare gross margins of flower combination like orchid, gerbera + rose, gerbera + rose + gladiolus and for gerbera were TK 428988, TK 1927626, TK 801332.88 and TK 2533078, respectively. She also identified problems and

constraints associated with production and marketing of flower and made some recommendations on the basis of constraints, which may help develop flower industry and strengthen its marketing system.

Quinto and Wittstock (2008) discussed the status of flower cultivation in Bangladesh. For quick returns and good market prospects, a vast area of agricultural land has been turned into flower growing areas. This study also shows the level of women's involvement in different stages of flower cultivation. Seraj (2008) reported the history of commercial rose cultivation which took place in Jhikorgacha upazila of Jessore during Mid-80s. Gradually it has spread other upazilas of Jessore and now Gadkhali bazaar of Jessore district is the largest flower bazaar of Bangladesh. Approximately thirty thousand flower-farmers of Jessore region are now engaged with this bazaar. Each day, flowers of Tk.10, 00,000- Tk.15, 00,000 are being bought and sold over here.

Qamruzzaman (2009) made a research that the exports flowers and floral products of Bangladesh to Pakistan, Italy, Portugal, Saudi Arabia, India, the United States, South Korea, Philippines, Singapore, Japan, Germany, Britain, Denmark and France was now take a good position and day by day. It enlarges and adds a new dimension in the export item of Bangladesh. The country earned over 166.1 million taka (about 2.56 million US dollars) in FY 2004-05. But due to lack of proper steps Bangladesh cannot utilize the opportunity.

Rahman (2009) observed the role of flower cultivation in poverty reduction and employment generation in Trilochonpur union of Jhenidah area, where around 2,300 bighas are now under flower cultivation. Farmers have shifted from traditional cultivation to flower cultivation as it proves more profitable for them. It also provides opportunities for women to generate income and contribute to bear their children's educational expenses. This study revealed the urgency of government initiatives to solve the problems such as a lack of preservation facilities, absence of cool transportation systems, scarcity of fertilizer and irrigation for the development of the business.

Haque and Hossain (2010) showed producers, marketing intermediaries and traders secure significant profit from flower production and marketing.

Chowdhury and Islam (2010) studied that conducted to estimate the post harvest losses of Rose and other flowers its impact on farmer's net profit, marketing margin and marketing efficiency and also estimate producer's share in consumer's price at different level of marketing such as producer, local trader, wholesaler and retailer.

Sayla (2010) conducted an analysis of commercial production of rose in Dhaka and Narayanganj district. The author attempted to examine the profitability of three selected crops. Per hectare net return of producing rose, marigold and gladiolus were TK 319372.01, TK 146080.91 and TK 631428.9, respectively. She also identified problems and constraints associated with production of these flowers and made some recommendations on the basis of constraints, which may help to develop flower industry and strengthen its production.

Sohel (2010) observed that the rose market is expanding day by day. Countries like Columbia, Israel, Kenya and Italy have made an entry and have created a good position. But the world floriculture trade is still controlled by Holland. The international floriculture market trade is estimated to be 40 billion US dollars of which cut-flowers account for nearly 25 billion US dollars. So Bangladesh has huge potential to capture the market. Through taking proper steps this opportunity can be utilized.

FAO (2011) represented the floriculture situation in Bangladesh among the countries of Asia. Commercial production of flowers is adopted on about 10,000 hectares where approximately 95% is being practiced under open field conditions, mainly for the local markets. The stage of commercial development is still at a very early stage. There exist some serious problems such as, poor extension and consultancy services, lack of knowledge and infrastructure of post-harvest management, lack of quality certification of flowers and government support is very limited.

Bhairat and Jadav (2012) observed the study was undertaken to examine the economics of rose cultivation, backward and forward linkages in rose production and identify the constraints to rose production and marketing using primary data collected from the Krishnagiri district of Tamil Nadu. The results showed that there was an impressive growth of rose.

Khan (2012) found that Bangladesh is well suited for commercial flower cultivation due to is favorable climate, cheap labor and relatively low capital investment. Now about 1, 50,000 people are directly or indirectly involved in floriculture business in Bangladesh. During FY 2010-2011, flowers worth US dollar 127,488 was exported. Though there exist some problems, it can be a profitable agro-economic sector which has a good prospect for exports. Sudhagar (2013) argued that the commercial development of rose industry in India is still at a very early stage. The major problems in the development are unorganized marketing, weak research, lack of support infrastructure and lack of educational base. Besides observing these problems, the author gave some positive news regarding floriculture development.

Alam and Monayem (2013) conducted an analysis that the profitability of rose cultivation in some area of jessore is a profitable enterprise. The highest profit was obtained from rose cultivation compared to its competitive crops like potato+jute, lentil+til and mustard+mungbean for rose. Human labor, land preparation cost, seedling, urea, TSP, MoP and irrigation had positive effect on the yield of rose.

Sharifuzzaman (2013) described the potentialities of flower cultivation. It is emerged as attractive business because many farmers shifted to floriculture from vegetables for higher profitability. The flower business has also formed other areas of trade including nurseries, transport service providers etc. As a result, it not only creates jobs for many, especially poor women, but also enlarges the opportunity to export. But due to the problems in production, harvesting, packaging, transportation and lack of government support, traders face losses which can reduce the prospects of flower exports, although Bangladesh has the potential to gain from floriculture due to its favorable agro-climate.

Kavirashna and Singh (2014) the study was undertaken to examine the economics of rose cultivation, backward and forward linkages in rose production and identify the constraints to rose production and marketing using primary data collected from the Krishnagiri district of Tamil Nadu. The results showed that there was an impressive growth alongwith high investment.

Abid and Usman (2014) stated that the flowers are used for expressing or exhibiting the innermost feelings to the beloved ones or complementing any one or versifying any conceivable emotions. The export of flower from Pakistan is very negligible as compared to other countries like Holland, USA, Columbia, Kenya, Zimbabwe, Japan and Israel. This paper examined the cost and return of rose cut flower along with Cobb Douglass production function to determine factors affecting rose cut flower productivity.

CHAPTER -III

METHODOLOGY

3.1 Introduction

Methodology is the systematic, theoretical analysis of the methods applied to a field of study. It comprises the theoretical analysis of the body of methods and principles associated with a branch of knowledge. It is the general research strategy that outlines the way in which research is to be undertaken and, among other things, identifies the methods to be used in it. The methodology of the study is adopted by various steps to select the best method fit to attain the set objectives of the research. Form this study farm level data are collected from every respondent directly through interview method. Primary data is collected with a structured questionnaire. Interview method is appropriate for accurate information required for this study because our farmers are not aware of maintaining records and accounts of farm business. Selection of the study area, selection of respondents, sample size & sampling technique, data collection procedures and analytical techniques followed in this study are main concern of this chapter.

3.2 Survey Area

This study was conducted at savar in Dhaka in Bangladesh. Keeping in mind the objectives of the study & considering the adjacent limitations data was collected three villages of savar upazila named Bongram uttarpara, Bongram modhopara and shaidullahpur. Data were collected randomly from farmers through interview method.

3.3 Sources of Data

Required data for the present study were collected from primary and secondary sources. Primary data were obtained from flowers cultivars, wholesaler & different flowers shops. The sources of secondary data were Bangladesh Bureau of Statistics (BBS), Hortex, and flowers related different websites.

3.4 Sample size and sampling techniques

Sampling is a crucial part of any research work. Conducting population census is quit impossible for anyone from economic point of view. Considering time and money constrain survey area was selected purposively. It was three village of savar district near to Dhaka. Simple random sampling technique was used in selecting the farmers from the population. There were fifty farmers in the sample frame.

3.5 Collection of Data

Required data were collected by the researcher with structured questionnaire from primary source and secondary sources. Interviews and survey methods were carried out to fulfill the objectives of the study. After fixing the survey schedule, field level primary data were collected from the farmers through direct interview. Brief description of the purpose of the study was disclosed to the farmers before starting. Responded were ensured that their provided information would be remained secret. Data were recorded in interview period and information was checked carefully.

Fig-3.1.1: Data collection from farmers at Bonogram, Savar in Dhaka

Fig-3.1.2: Data collection from farmers at Bonogram, Savar in Dhaka

Fig-3.1.3: Data collection from farmers at Bonogram, Savar in Dhaka

3.6 Period of data collection

Required data were collected from September to November in 2018 by the researcher himself.

3.7 Processing of data

Processing of data is very much important because it describes the whole result. Data collection procedure was too much challenging. MS Excel and SPSS were applied. After completion of data collection, raw data were edited, coded through SPSS software. Analysis was the most important part in this study. Care was taken in case of inputting data. Data were presented mostly in the tabular and graphical form because these were simple calculation, widely used and easy understanding.

3.8 Analytical technique

In this study, the following techniques will be used:

3.8.1 Tabular technique

Commonly used tabular summary of data for a single variable was a frequency distribution. The most common tabular summary of data for two variables was a cross tabulation, a two variable analogue of a frequency distribution.

3.8.2 Graphical methods

Bar graph, pie chart, histogram was used.

3.8.3 Multiple Linear Regression Function

This method represents the relationship between output and factor inputs. To estimate the production function, one requires development of its properties leading to specification of an explicit functional form.

3.8.4 Descriptive Analysis

Tabular and graphical techniques of analysis were generally used to find out the socio demographic profiles of the farmers, to determine the cost, returns and profitability of the cut flowers farmers. It is simple in calculation, widely used and easy to understand.

3.8.5 The Analytical Technique

Multiple linear regression attempts to model the relationship between two or more explanatory variables and a response variable by fitting a linear equation to observed data. Every value of the independent variable x is associated with a value of the dependent variable y.

The population regression line for p explanatory variables $x_1, x_2, \ldots, x_p$ is defined to be $\mu_y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_p x_p$.

This line describes how the mean response μ_y changes with the explanatory variables. The observed values for y vary about their means μ_y and are assumed to have the same standard deviation σ. The fitted values $b_0, b_1, \ldots, b_p$ estimate the parameters $\beta_0, \beta_1, \ldots, \beta_p$ of the population regression line.

Formally, the model for multiple linear regression, given observations, is

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \beta_5 x_5 + \beta_6 x_6 + \beta_7 x_7 + \beta_8 x_8 + \beta_9 x_9 + \beta_{10} x_{10}$$

Where,

Y = monthly income of the farmer

β_0 = Intercept

x_1 = Flowers variety

x_2 = Age of the farmers

x_3 = Marital status of the respondents

x_4 = Family members

x_5 = Family members involved in rose production

x_6 = Education of the respondents

x_7 = Initial investment

x_8 = Input seedlings

x_9 = Transportation

x_{10} = Market place

3.9 Problem Faced in Data Collection

The following problems were faced during the data collection-

a) The farmers did not keep records of their business and operating expense. Therefore the researcher had to depend upon their recollection.
b) Farmers were uninterested in answering question since they had very little idea about research and assumed that researcher might the information against their interest. To earn the confidence of the farmers a great deal of time was spent.
c) The farmers were usually busy with their works. So the researcher sometimes also had to pay extra visits and some money to meet the farmers.

CHAPTER-IV

RESULTS AND DISCUSSION

4.1 Introduction

Socio-economic condition of the sample farmers is very important in use of research planning because there are numerous interrelated and constituent attributes characterizes an individual and profoundly influences development of his/her behaviors and personality. People differ from one another for the variation of socio-economic aspects. However for the present research a few of the socio-economic characteristics have been taken into consideration for discussion such as gender, age, family size, educational level etc.

4.2 Age of farmers

Age of farmers play a crucial role in flowers production and in better management. The age group of farm family members was classified into four categories in this study. These were: a) 20-30 years, b) 31-40 years, c) 41-50 years & d) 51-above . All respondents were male in gender of this research study.

Table -4.2.1: Age of the sample farmers

Range of age(year)	Number of farmers	Percent (%)
20-30	3	6
31-40	30	60
41-50	16	32
51-above	1	2
Total	50	100

Source: Field survey, 2018.

4.3 Marital status

Marital status, are the distinct options that describe a person's relationship with a significant other. Married, single, divorced and widowed are examples of civil status. The marital status of farm family members was classified into three categories in this

study. In this study we found 88% respondents were married, 10% unmarried and 2% widower. Farmer's marital status in the study area is given below through a pie chart.

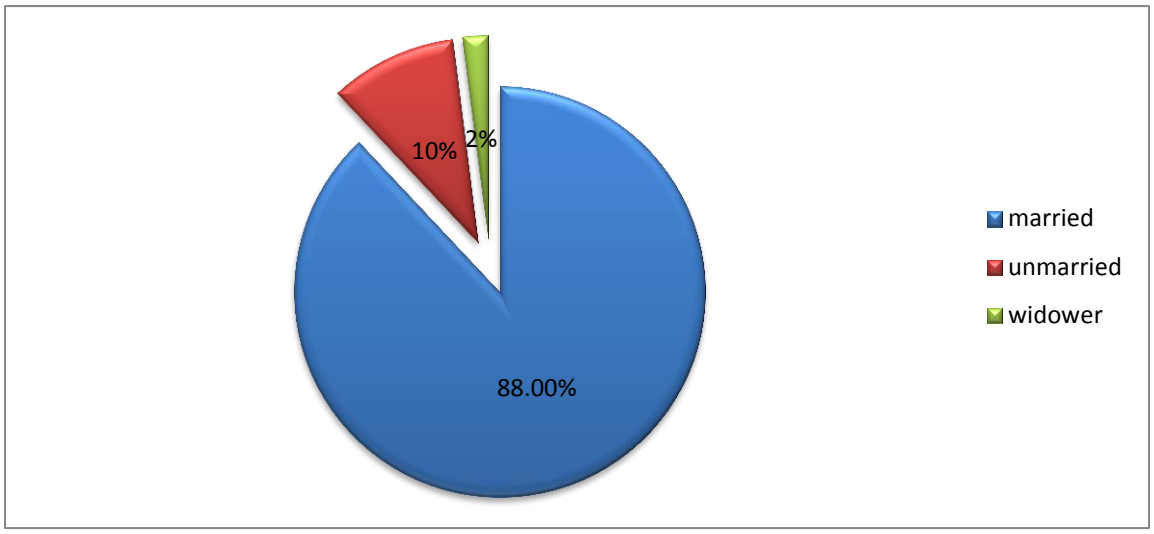

Fig- 4.1.1: Pie chart of marital status of the sample respondents

4.4 Number of family members of the sample respondents

Family members were categorized into three groups and these were a) less 4, b) 4 to 6 and c) 7 to above. Family members of cut flower farmers in the selected area are given below through table.

Table 4.2.2: Family members of the sample respondents

Member range	Number of family	Percentage (%)
Less 4	3	6
4 to 6	26	52
7 to above	21	42
Total	50	100

Source: Field survey, 2018.

4.5 Educational qualification of the farmers

44% of the respondents were in primary level which was the maximum educational percentage of the study. Farmer's educational status in the selected area is given below through Bar- diagram.

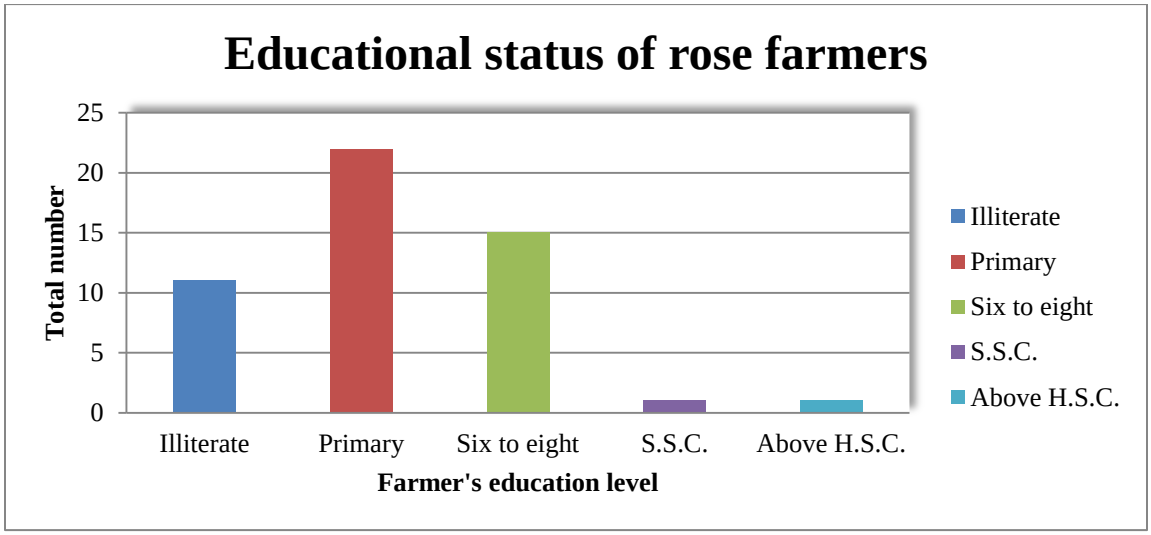

Fig- 4.1.2: Bar-diagram of educational status of the respondents

4.6 Earning members of farmer's family

The highest proportion of family members had only one income earner and the percentage was about 60%. And others income earners percentage is given below through pie-chart.

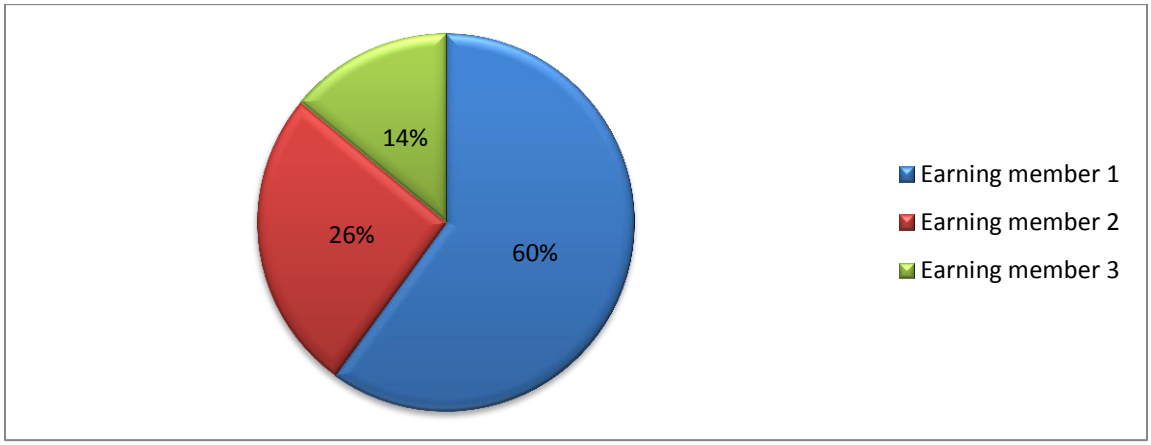

Fig- 4.1.3: Earning members of farmer family

4.7 Income Source

Maximum of the farmers were involved in rose cultivation. Few respondents were cultivated gladiolas, gerbera and a few involved in livestock production in the selected area. Figure is given below in tabular form.

Table- 4.2.3: Income source of the respondents in percentage

Income Source	Number of respondent	percentage
Rose	42	84
Rose+Gerbera+Livestock	8	16
Total	50	100

Source: Field survey, 2018.

4.8 Input Seedlings collection

Input seedlings are the main investment of a farmer. They mainly bought their seedlings from local nursery and some seedlings were grown by themselves. Here is a pie-chart below which describes the percentage of their input seedlings.

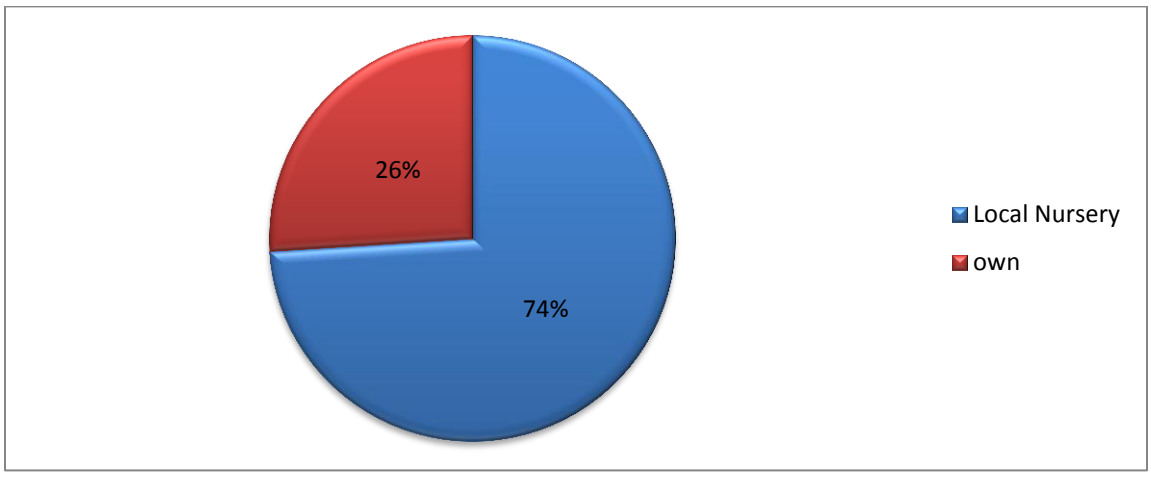

Fig-4.1.4: Input seedlings collection

4.9 Initial Investment

Initial investment is the vital factor for any successful business. From this study it was found that the most of the farmers started their investment with 1 lac to 2 lac. They did not get any loan opportunities, NGO as well as government support. This result is below in tabular form.

Table-4.2.4 Initial investment of the farmers

Investment range	Number of farmers	Percentage
1lac-2lac	27	54
2lac above-3lac	7	14
3lac above-4lac	8	16
4lac above-5lac	4	8
5lac above-6lac	3	6
6lac above-7lac	1	2

Source: Field survey, 2018.

4.10 Monthly Income of the respondents

Most of the farmers and it was about 66% of the farmer earned 10k to 20k. These data are shown in bar diagram below-

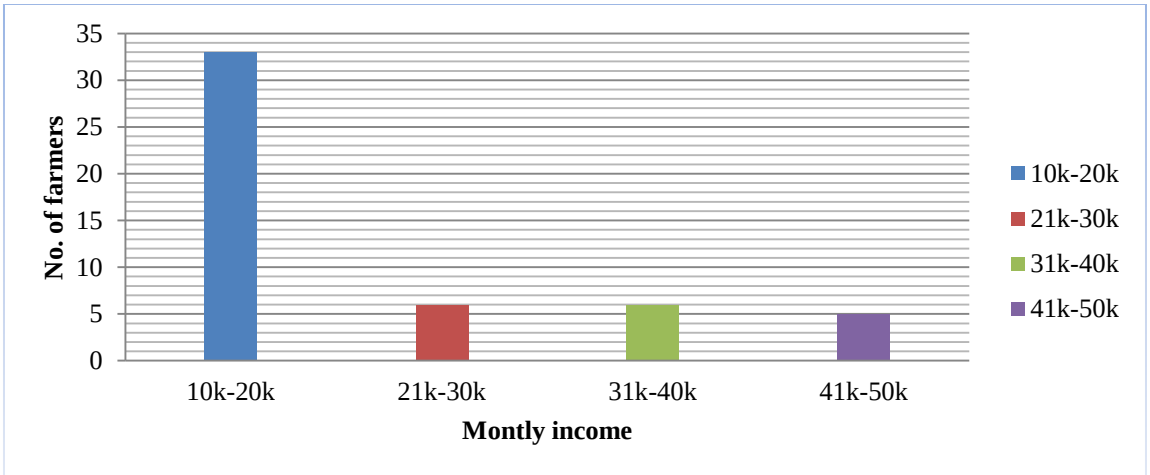

Fig- 4.1.5 Bar diagram of monthly income of the respondents

4.11 Market place

It was found that 78% farmers sold their cut flowers in local market, 14% in shahbag and 8% in agargaon. This information is presented in a pie-chart below:

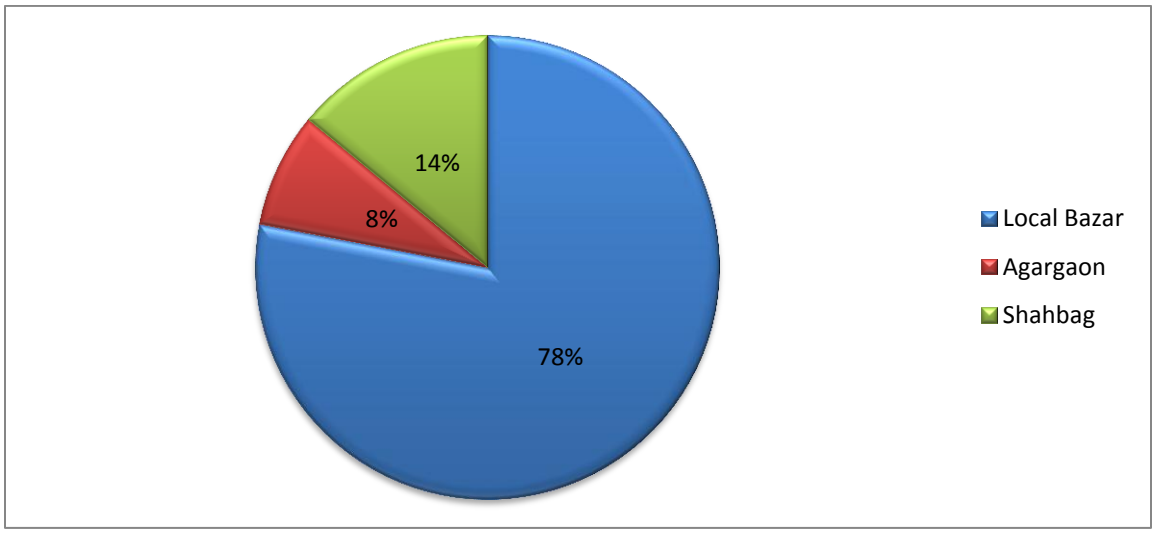

Fig- 4.1.6: Market place of the respondents

CHAPTER-V

SUPPLY CHAIN ANALYSIS OF ROSE

5.1 Introduction

Supply chain management (SCM) is the active management of supply chain activities to maximize customer value and achieve a sustainable competitive advantage. It represents a conscious effort by the supply chain farms to develop and run supply chains in the most effective & efficient ways possible. Supply chain activities cover everything from product development, sourcing, production, and logistics, as well as the information systems needed to coordinate these activities.

This chapter identified the main actors of supply chain of rose in a systematic way. This chapter goes through the existing marketing channel, identified the possible marketing channel for employment generation, different marketing channel and value addition.

5.2 Existing marketing channel of rose

The concept of supply chain has come into existence since 1980s. A supply chain is a network of facilities and distribution options that performs the function of.

a) Procurement of raw materials,
b) Transformation of these materials into intermediate and finished product and services through processing, and
c) The distribution and delivery of these finished products or final services to customers.

Supply chain analysis intended to generate a systematic knowledge of flow of goods and services from origin to the final destination through different market intermediaries.

The existing distribution channels were shown below:

Route -1 Farmer to customer:

In this route farmers directly sold their flowers to customer in different place in Dhaka and some sold from their cultivation land. In this way they earned much but it was so time consuming for them.

Route-2 Farmer to middlemen to customer

Route-3 Farmer to middlemen to savar to local market to customer

Route-4 Farmer to middlemen to Dhaka to shahbag to retailer to customer

Route-5 Farmer to middlemen to Dhaka to agargaon to retailer to customer

Route-6 Farmer to shahbag to customer

Route-7 Farmer to Agargaon to customer

And the existing figure is presented below

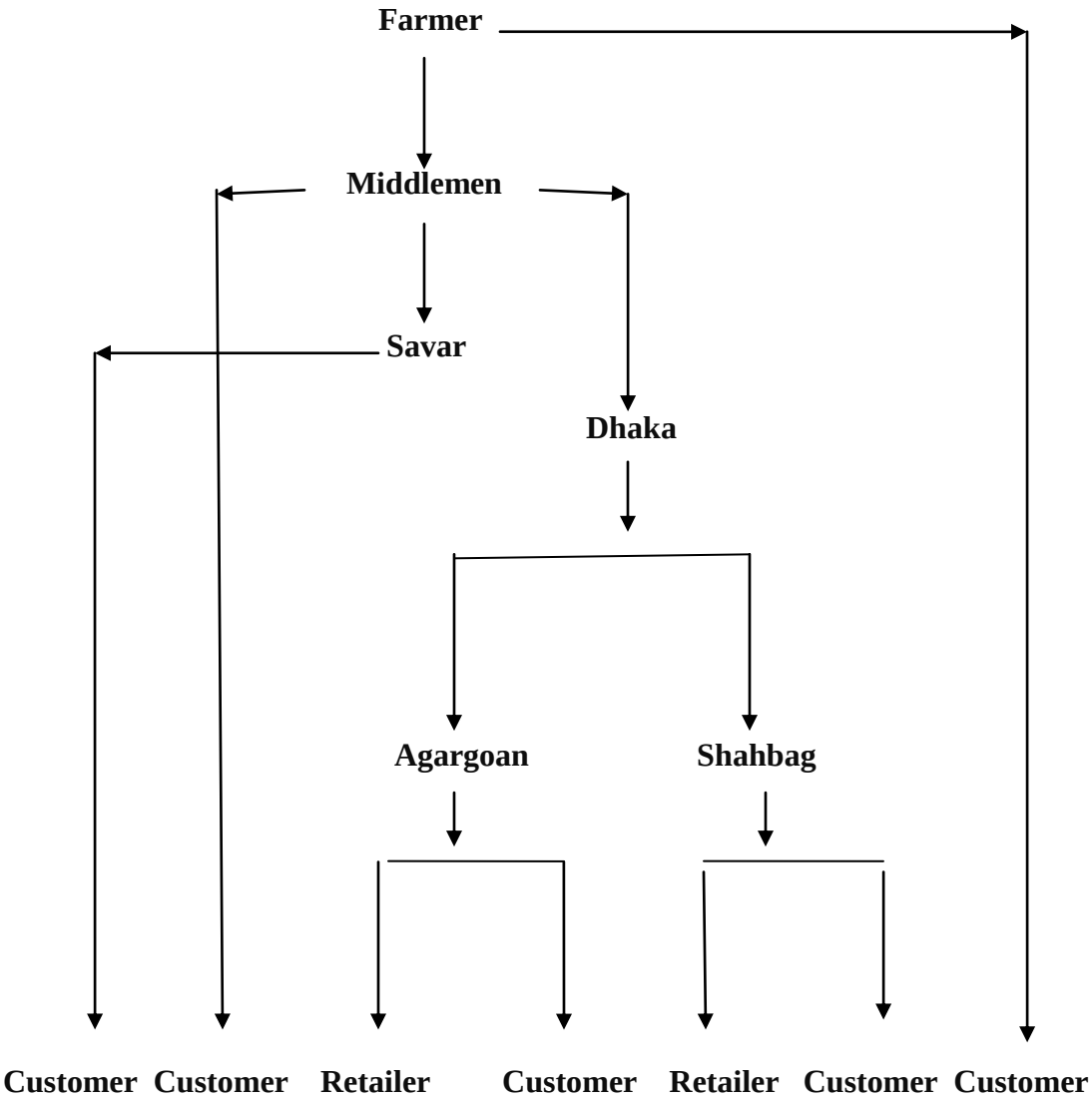

Fig- 5.1: Existing Marketing Channel in selected Area

CHAPTER-VI

VALUE CHAIN OPPORTUNITIES IN SELECTED AREA

6.1 Introduction

Flowers are widely used in political, social and corporate events. This is because of economic growth, which brought changes in living standards of people as they have disposable income.

The growing middle class, equipped with disposable income, along with the rise of corporate businesses and widespread use of flowers in various programs - have expanded the flowers and cut foliage business in Bangladesh.

However, cultural changes among the young generation in celebrating western festivals such Valentine's Day, Friendship Day, Mother's Day and iconic cultural events like Pohela Boishakh , Pohela Falgun have expedited the growth of flower business in the country.

In addition, the celebration of National Days such as Ekushey February, Independence Day and Victory Day has reached to rural level more than ever before, which also helped boost the business.

For meeting demands of flowers for big occasions like Ekushey February, Bangladesh has to import, as the demand in the local market is growing very fast.

On the other hand, there is huge opportunity in the export market as the production cost in Bangladesh is lower compared to other flower-exporting countries.

According to Export Promotion Bureau (EPB) data, in 2016-17 fiscal year, Bangladesh exported cut flowers, leaves, trees, plants, bulbs, roots of $86,000, up 10.26%, which was $78,000 in the previous year.

Bangladesh has a competitive advantage due to its favorable climate and topography as well as low labor cost and relatively low capital investment which is helping the sector to thrive.

6.2 Value chain opportunities

Cut flowers are a very promising sector offering higher return. So this foreign exchange-earning sector should get priority from all agencies to develop.

Following recommendations could be considered to develop and promote the Cut flowers sub-sector:

1. Teaching Flower Preservation System: Most important support to the flower growers could be teaching them how to preserve flowers for a comparatively longer period.

2. Supplying modern flower packaging materials: Non-perishable flower packaging system could help the flower growers to add more value to flowers.

3. Assisting in development of cold chain: Government/donor agencies/ development partners could take the lead in developing a preservation-friendly cold chain (storage & transport) system for the flower growers.

4. Establishing permanent flower wholesale market: City corporations, municipal authorities and district administrators could establish permanent wholesale flower markets.

5. Diversified variety of flowers could be supplied: Agriculture Research Council or other agriculturist agencies could take the lead in supplying various new varieties of flowers for cultivation.

6. Match-making: Match-making event could be organized to meet the flower growers with the herbal cosmetic companies, perfume companies and herbal medicine companies to establish forward and backward linkage between the sectors.

7. Providing higher amount /industrial/ SME loan for establishment: Easily to access loan products should be introduced to assist green house/shed building to grow higher priced flowers in Bangladesh.

8. Initiative for increasing flower export: Government agencies should be proactive to increase flower export from Bangladesh into new destinations or increase volume in existing export destinations.

Cut flower is a very promising export sub-sector. It could enlarge our export basket and increase export earnings.

6.3 Value addition in rose:

Rose is one of the most beautiful creations of nature and in universally acclaimed as queen of flowers. Apart from being admired for its beauty, rose is used in worship, garland, bouquets, cut flowers, preserve and decoration etc. Because of diversified growth habit, exquisite shape, variation in size and form, attractive color, delightful fragrance and numerous varieties, rose have gained wide acceptability.

The life of cut and loose flowers of rose is very short. In case of glut farmers do not get remunerative price, value addition is the way under these conditions. Value addition is any steps taken to increase the raw product any time between harvesting and sale of the final product. It is increase in value of any product through changes by processing. Value addition is done by following ways-

a) Flower arrangements like bouquets, wreaths, corsages, garlands and buttonholes
b) Dry flowers
c) Pot pourris
d) Rose oil, water, concrete, absolute, gulkand
e) Rose hip juice, jam, tea and candy

6.3.1 Rose oil, concrete and absolute

Rose oil (rose otto, attar of rose, attar of roses or rose essence) is the essential oil extracted from the petals of various types of rose. Rose ottos are extracted through steam distillation, while rose absolutes are obtained through solvent extraction; the absolute being used more commonly in perfumery. Even with their high price and the advent of organic synthesis, rose oils are still perhaps the most widely used essential oil in perfumery.

Two major species of rose are cultivated for the production of rose oil:

a) *Rosa damascena*, the damask rose, which is widely grown in Syria, Bulgaria, Turkey, Russia, Pakistan, India, Uzbekistan, Iran and China
b) *Rosa centifolia*, the cabbage rose, which is more commonly grown in Morocco, France and Egypt.

Due to the labor-intensive production process and the low content of oil in the rose blooms, rose oil commands a very high price. Harvesting of flowers is done by hand in the morning before sunrise and material is distilled the same day.

There are three main methods of extracting the oil from the plant material:

a) Steam distillation, which produces an essential oil called rose otto or attar of roses.
b) Solvent extraction, which results in an absolute called rose absolute.
c) Supercritical carbon dioxide extraction, yielding a concrete that may be marketed as a concrete, absolute or CO_2 extract.

Fig- 6.3.1.1: Rose oil, concrete and absolute

6.3.2 Rose water:

Rose water is a liquid made from water and rose petals. It is used as a perfume due to its sweet scent, but it has medicinal and culinary values, as well.

It is not too hard to get lost in the heavenly fragrance of rose water. This amazing ingredient is a staple in most skin care routines. In fact, its use dates back to before the establishment of the Roman Empire when Cleopatra was believed to use it as a part of her beauty regime. Rose water offers you numerous benefits – such as maintains the pH balance your skin, curbs acne, tones your skin, hydrates your skin, reduces puffiness, suits sensitive skin, slows aging, soothes skin condition, refreshes your skin, soothes sunburns etc.

Fig- 6.3.2.1: Rose water

6.3.3 Gulkand

Gulkand (also written gulqand or gulkhand) is a sweet preserve of rose petals in the South Asia. It is prepared using special pink rose petals and mixed with sugar. Its original etymology claims to be the same in both Persian and Urdu; *Gul*, which means 'flower' in both languages, and *Qand*, which means 'sweet' in Arabic. Health benefits of gulkand include its uses in various diseases that occur due to excess heat in the body or hot temperature outside. Diseases that occur due to excess heat are known as PITTA diseases in ayurveda. Gulkand is a best remedy for these diseases.

a) Constipation,
b) sunburn,
c) nosebleed,
d) heartburn,
e) gastritis,
f) mouth ulcers,
g) Anal problems etc.

Fig- 6.3.3.1: Gulkand

6.3.4 Roghan Gul:

It is an effleurage rose petals in sesamum oils. It is used as a tonic, analgesic and to cure meningitis etc. Benefits of roghan gul are as bellow-

Removes Toxic Agents

As a sudorific, both varieties of roghan gul induce profuse perspiration, which helps to remove toxins and agents that cause infections while simultaneously cooling down the body and effectively providing relief from fever, thus serving as a Febrifuge.

Prevents Infections

Both varieties have very good antiseptic and antibiotic properties which do not let biotic infections develop, which arise due to biotic factors such as bacteria and fungi. They also eliminate infections that are already present. These are good vermifuge agents as well, which kill all sorts of intestinal worms. If applied to the hair, it kills lice and mites, keeping the hair and scalp free from infections and damage.

Relieves Depression

Both varieties have been seen to be very effective in fighting depression and for raising spirits. They eliminate feelings of sadness, depression, disappointment, and sluggishness while inducing a sort of happy or charged feeling. Even smelling these oils can help a lot in overcoming depression and bringing about a good mood.

Reduces Anger

While Roman camomile is found to be effective in calming down annoyance, anger, and irritation, particularly in small children. The German variety, on the other hand, is found to be more effective on adults for curing inflammation, particularly when it is located in the digestive or urinary system. They also reduce blood pressure and curb the swelling of blood vessels.

Improves Digestion

Being a stomachic, they tone up the stomach and ensure its proper function. They also promote the secretion of digestive juices into the stomach and facilitate digestion. Being hepatic, they ensure good health of the liver and the proper flow of bile from it. They are also considered cholagogues, meaning that they increase the secretion of hydrochloric acid, bile, and enzymes in the stomach, thereby promoting digestion.

Fig- 6.3.4.1: Roghan Gul

6.3.5: Rose Hip Juice

Rose hip contains the seeds of the rose plant. Dried rose hip and the seeds are used together to make medicine. Fresh rose hip contains a lot of vitamin C, so it shares many uses with vitamin C including preventing and treating colds, flu, and vitamin C deficiencies.

Fig- 6.3.5.1: Rose hip juice

6.3.6: Potpourri

Potpourri is a mixture of dried, naturally fragrant plant material, used to provide a gentle natural scent, commonly in residential settings. It is often placed in a decorative bowl or tied in small sachet made from sheer fabric.

Fig-6.3.6.1: Potpourri

CHAPTER-VII

RELATIONSHIP BETWEEN THE VARIABLES THAT AFFECT ROSE FARMER'S INCOME

This chapter is tried to explain how the independent variables affect the dependent variable (Monthly income). Here the independent variables are as below-

a) Flowers: Analysis showed that there was positive relationship between dependent variables and independent variable. If the varieties of rose will increase then the monthly income of farmer will increase.
b) Age: It showed that there was an inverse relation between monthly income and age of the farmers. Most the farmers were above 40 years old that's why the efficiency of the farmer not sufficient to cultivate more flowers.
c) Marital status: Most of the respondents were married and having large family. So their income is not good enough to lead their lives.
d) Family members: Analysis showed that when more family member involved in rose production then monthly income increased of the farmers in the selected area. So involving family members in rose production gives a positive relation with the dependent variable.
e) Education: There was an inverse relationship between education and monthly income of the farmers. Majority of the farmer educational profile was under eight.
f) Initial Investment: Initial investment is crucial for any business. When initial investment is high then the monthly income is higher. As a result, researcher got a positive relationship with the variables.
g) Input Seedlings: Input seedlings performed a positive relationship between the variables.
h) Transportation: Transport system helps to income more when it is suitable. Although the selected area was near to Dhaka but transportation system was not too structural. So it showed an inverse relationship between the variables.
i) Market place: There was a positive relationship between the independent variable and dependent variable.

Table- 7.1.1: Estimated value of coefficient related statistics of Multiple Linear Regression

Variables	Co-efficient	Mean	Standard Deviation(SD)	t value
Flowers	.193	1.1400	.35051	.903
Age	-.115	2.3000	.61445	-.798
Marital status	-.305	1.0600	.23990	-.849
Family members	.087	2.4400	.50143	.478
Members involved in Rose production	.002	1.5200	.70682	.016
Education	-.049	2.2200	.86402	-.587
Initial investment	.650	2.0000	1.21218	7.757
Input seedlings	.040	1.2800	.45356	.107
Transport	-.465	1.2400	.43142	-.673
Market place	.119	1.4000	.75593	.370

Source: Field survey,2018

Here,

The value of R= .866

Value of R^2 = .749

Adjusted R^2 = .677

CHAPTER-VIII

FACTORS AFFECTING OF ROSE IN SELECTED AREA

The problems of production and marketing arise when the objectives of production and marketing are constrained to be achieved. For the sake of convenience, the constraints faced by the selected farmers in the study area have been categorized under four general groups such as economic, technical, marketing, and social and others that are shown as below-

Economic Problems In the survey, farmers were asked to identify some economic problems related to growing flowers. The problems that were identified and faced by them are discussed below.

High Input Price The cultivation mostly depends on some important inputs. Seedling or plantlet, fertilizer, insecticide and irrigation are some of them. In every week some of these inputs must be needed for rose cultivation. But high price of input affect floriculture negatively. According to the field survey, seventy six percent of the rose producers had to face this problem.

Insufficient Credit Facilities Insufficient credit is a big problem for farmers. Rose cultivation needs a lot of credit. In the study area farmers do not get sufficient loan from the banks. Banks are reluctant to give loan to farmers. As a result they take loan from different NGOs and money lender at high interest rate. Twenty three percent of the producers had to face this problem.

Low Selling Price Low selling price is a great problem for farmers because they do not get their anticipated price. Thirty three percent of the flower producers had to face this problem.

Technical Problems Technical problems are related to production techniques and technology such as lack of scientific knowledge, lack of quality seeds or plants, attack by pest and diseases, lack of storage facilities and lack of extension work.

Lack of Scientific Knowledge and Training Commercial rose farming is a new practice in Bangladesh. There is a shortage of trained manpower to handle commercial floriculture activities such as production, post harvest handling, product development and biotechnology. Most of the farmers keep a little knowledge about modem technology. It is evident from the table that forty two percent of farmers faced the problem of proper knowledge and training.

Attack by Pests and Diseases In the survey, the producers mentioned that considerable amount of loss in yield of their flowers was caused by the attack of pest and diseases. During the present investigation, sixty eight percent of flower producers faced this problem.

Lack of Extension Services Farmers need to introduce new information and technologies about rose cultivation because of new practice of commercial flower farming. Nine percent of producers claimed that there is lack of extension contact with any organization.

Marketing Problems In the survey area, the rose cultivators face several marketing problems which are discussed below

Inadequate and Underdeveloped Market Inadequate and underdeveloped market is a big problem for the rose cultivators. Thirty eight percent of flower producers claimed that they faced this problem.

Transportation and Communication Problems

Transportation is the life blood of modem marketing system. The communication network in the study areas was not properly developed for the movement of agricultural products from the producer's field to different markets. Dhaka shahabagh market is the

center of flower market. Some villages are far from the market. About sixty one percent of rose cultivators stated that inadequate communication were a problem in transporting their flowers from different flower markets.

Lack of Market Information Proper market information is essential for quick disposal because rose is a highly perishable product so it requires proper market information but twelve percent of farmers reported that they failed to get necessary market information in time.

Social and Other Problems In the survey area, the flower farmers face some social and other problem like loss of production due to theft, flower damage by animals and spoilage that are discussed below.

Loss of Production Due to Theft In the month of February, March and December the flower farmers' face this problem due to International Valentine's Day, International Mother Language Day, National day and the Victory Day. Thirty three percent of flower producers claimed that they faced this problem.

Flower Damage by Animals Flower damage by animals is also a social problem. Seventeen percent of flower producers claimed that they faced this problem.

Spoilage of flower affect negatively to the rose cultivators. In the survey area, eighty five percent of flower producers claimed that they faced this problem.

CHAPTER-IX

CONCLUSION & RECOMMENDATION

This chapter focuses on the summary in the light of the discussion made in the earlier chapters. Conclusion has been made on the basis of empirical result. Policy recommendations are drawn for improvement of the existing inefficiency of rose production in Bonogram in Savar, Dhaka.

9.1 Conclusion

The results revealed that rose cultivation is profitable in the selected area. Its cultivation is also profitable compared to its competitive flowers. Human labor, seedling, flowers' variety, family member as well as family member's involved in rose production, initial investment and market place had positive effect on the monthly income of rose farmers.

Age of farmers play a crucial role in flowers production and in better management. 60% of the respondents were 31 to 40 years old. In this study the researcher found 88% respondents were married, 10% unmarried and 2% widower. Family members were categorized into three groups and these were less 4 (6%), 4 to 6 (52%) and 7 to above (42%). 44% of the respondents were in primary level which was the maximum educational percentage of the study of the selected area. The highest proportion of family members had only one earner and the percentage was 60. Most of the farmers were involved in rose cultivation (84%). Few respondents were cultivated gladiolas, gerbera and a few involved in livestock production in the selected area. Input seedlings are the main investment of a farmer. They mainly bought their seedlings from local nursery (74%) and some seedlings were grown by themselves. Initial investment is the vital factor for any successful business. From this study it was found that most of the farmers started their investment with 1 lac to 2 lac. They did not get any loan opportunities, NGO as well as government support. Monthly income depends on various factors and it was about

66% of the farmer earned 10k to 20k. The study was found that 78% farmers sold their cut flowers in local market, 14% in shahbag and 8% in agargaon.

The rose cultivators face several economic, technical, marketing and social problems. The major problems found in the study area regarding rose cultivation were spoilage due to lack of cooling facilities, high input price, attack by pest and disease, inadequate transportation and communication system, lack of scientific knowledge and training, low selling price, insufficient credit facilities. The highest profit was obtained from rose cultivation compared to its competitive flowers like gladiolus, gerbera and others for rose. Human labor, land preparation cost, seedling, urea, TSP, puglin and vitamins had positive effect on the yield of rose. Lack of technical knowledge, non-availability of HYV seedling, and infestation of insects and diseases were major problems found in rose cultivation. Government should take necessary steps to overcome these problems. For our country, accelerated agricultural growth through crop diversification offers considerable opportunity for expanding income and employment of rural people. Flower cultivation is being considered as the best option for crop diversification, employment generation and improvement of socio-economic conditions of people. This study shows that rose cultivation is a prospective business which ensures higher profit. Bangladesh has a very favorable climate to turn the flower business into blooming industry. Bonogram is regarded as commercial zone of rose cultivation. It can not only play a vital role in employment generation but also can contribute in the national economy through earning valuable foreign currency. But the commercial development of the business is still at very early stage. The present rose cultivators are facing several economic, technical, marketing and social problems mentioned above. If we can solve it, this industry must play a great role to economic growth because it has a great prospects like favorable condition, need lower investment, development partners are keen on this area and development assistance suppose to be available, growing concern over skill requirements among the traders, farmers, and other stakeholders and increasing demand of export.

9.2 Recommendation

On the basis of the findings of this study rose cultivation was considered a profitable business for investment decision and it can provide huge income generation as well as employment opportunities. Based on the findings of the study, the following recommendations were put forward for the improvement of rose cultivation at farm level. Farmers training should be conducted by the BARI scientists to develop technical knowledge about improved cultivation practices of rose. High yielding varieties rose seedling/cutting should be made locally available to the farmers at proper time. For this reason, government should encourage researcher and private seed companies for producing HYV seedling/cutting of rose. More intensive research should be undertaken by BARI scientists to develop disease and insect-pest resistant HYV varieties of rose in the near future. Market infrastructure should be developed in terms of quick transportation, proper storage and other physical facilities to reduce spoilage and damage.

a) Cultivators should provide proper cooling facilities at market place. When they can't sell their flowers, it spoiled. So, if they get cooling facility, they will be able to sell it in the next day.
b) Input price should be reduced or subsidized for lowering the cost of production.
c) Pure pesticide and pest management knowledge should supply to the flower cultivators.
d) Proper transportation and communication system should be ensured.
e) Flower cultivators need to be trained in the scientific production practices and technology related to this new enterprise.
f) Fair selling price should be ensured.
g) Skill development training on Post Harvest Management of flowers and ornamental plants is required for the farmers and traders as well.

9.3 Limitations of the study

a) Most of the data collected through interview of the farmers. So sometimes they were not well co-operated with the interviewer.
b) The information gathered mostly through the memories of farmers which are not always correct.
c) It is not grown without much care practice; profits are not remembered by the farmers.
d) Sometimes respondents are not interested to give information to the authors.
e) For the resource and time constraints broad and in depth study got hamper to some extent.

CHAPTER-X

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APPENDIX

Questionnaire for sample farmers
Department of Agribusiness & Marketing
Sher-E-Bangla Agricultural University
Thesis on: Profitability Analysis of cut flowers- based on rose

Name: Mob:	Village: Upzilla:	Union: District:

1. Flower Varieties

Rose	Gerbera	Others

2. Socio-economic Condition:

Age		**a. Less 20 b. 21 to 30 c. 31 to 40 d. 41 to 50 e. 51 to above**
Sex		**a. Male b. Female**
Marital Status		**a. Married b. Unmarried c. Widow/Widower**
Family Members		**a. Less 4 b. 4 to 6 c. 7 to above**

Members Involved in rose production & marketing		
Education		**a. Illiterate= 1, b. Primary= 2, c. Class eight= 3, d. SSC= 4, e. HSC= 5, Above= 6**
Income Source		
Monthly income(flower)		
Initial Investment		

3. Production & Marketing Information

Input seedling		**a) Own** **b) Local Nursery** **c) Dhaka** **d) Others**
Fertilizers		**a) Urea** **b) TSP** **c) MOP** **d) Zip sum** **e) Zinc**

Pesticide		
Transport Mood		**a) Truck** **b) Bus** **c) Van** **d) CNG** **e) Others**
Where they sell their flowers		**a) Local bazaar** **b) Dhaka** **c) Others**
To whom they sell their flowers		**a) Customer** **b) Middlemen (Whole seller/retailer)**
Training? **If yes, go to next question…**		**a) Yes = 2** **b) No = 1**
Training?		**a) Govt.** **b) NGO** **c) International org.** **d) Others**
Do you know about value addition? **If yes, go to next question….**		**a) Yes=1** **b) No=2**

Types of value addition?		**a) Washing** **b) Grading** **c) Packing** **d) Others**
Additional price for value addition?		**a) Basket price** **b) Plastic price** **c) Rapping price** **d) Others**

4. Problem faced by farmers

Economic problems		**a) High input price** **b) Insufficient credit facilities** **c) Low selling price** **d) Others**
Technical problems		**a) Lack of scientific knowledge & training** **b) Bad environment** **c) Attacked by pests & diseases** **d) Others**
Marketing problem		**a) Inadequate & Underdeveloped** **b) Transportation & communication system** **c) Lack of market information**