PROBLEMS FACED BY THE NURSERY OWNERS IN SEEDLING PRODUCTION

A THESIS

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CERTIFICATE

This is to certify that the thesis entitled **"PROBLEMS FACED BY THE NURSERY OWNERS IN SEEDLING PRODUCTION"** submitted to the Faculty of Agriculture, Sher-e-Bangla Agricultural University, Dhaka, in partial fulfillment of the requirements for the degree of **Master of Science in Agroforestry and Environmental Science**, embodies the result of a piece of bona fide research work carried out by **Iffat Jahan Heera,** Registration No. **06-02137** under my supervision and guidance. No part of the thesis has been submitted for any other degree or diploma.

I further certify that any help or source of information, received during the course of this investigation has been duly acknowledged.

Dated : June,2014

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DEDICATED TO

MY

BELOVED PARENTS

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The Author

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ABSTRACT

The objective of the study was to determine the problem faced by the nursery owners in seedling production and also to explore the relationships between the selected characteristics of the nursery owners and their problem faced in seedling production. The study was conducted in Savar Upazila under Dhaka district. Data were collected through simple random sampling method from 30 nursery owners out of 120 owners in Savar Upazila under Dhaka district. Selected nursery owners were interviewed face-to-face by researcher herself. Twelve problems were identified in seedling production. Scale score was used to determine nursery owners ' problem in seedling production while a problem faced Index (PFI) was used to make comparison among the 12 selected problems. Pearson's Product Moment Correlation coefficient (r) was used for the statistical analysis. Three fourth (76.7 percent) of the nursery owners were faced medium to high problem while 23.3 percent faced little problem in seedling production. The findings also revealed that training exposure, annual income, marketing facility, capital investment, input availability and organizational participation had negative significant relationships with their problem faced in seedling production. According to problem faced Index (PFI) lack of suitable area for seedling production ranked first followed by lack of technical knowledge, lack of skilled labour, disease infestation and insect infestation.

CHAPTER I
INTRODUCTION

1.1 General Background

Nursery seedling production is the most common practice for raising planting stock. The use of plants produced from the nursery is generally the most efficient and effective way of establishing a forest plantation. Plantation quality depends largely on seed source and seed health of the seedlings. There is a great demand of timber, fruit, ornamental and medicinal plant seedlings throughout the country. This demand is being met up by the government and non-government organization insufficiently. Moreover, the demand of different sapling is increasing day by day. Nursery has a vast role on plant conservation.

Different nursery produce seedlings by using different techniques and materials e.g. seeds, grafts, cuttings, layering, buds etc. The nursery owner not only produce huge amount of seedlings of different fruit, forest, ornamental, medicinal plants but also supply to others and conserves mother tree for producing quality plants. Nursery, the site of raising seedlings is the main source of planting materials for the countries both for small and large-scale plantation programs. But the quality of planting materials of both fruit and timber trees is often poor; all most all nursery owners are suffering from the poor quality of planting materials, seeds, scions, etc. Seeds are collected from local sources, vendors and shops without consideration of the quality aspect. Moreover, one important aspect found that vegetatively propagated planting materials are costly. As a result, poor farmers cannot afford improved grafted varieties. So, the sources of seed remain a limiting factor for the successful establishment of any plantation. In this circumstance, there is a need to identify that what are the problems faced by the nursery owners in seedling production. With these views in mind, the present study was undertaken.

Bangladesh is an agro-based country where 85 percent people live in rural areas. They have mostly nutritional deficiency. In order to meet the nutritional demand of increasing population of the country, huge amount of fruits and vegetables need to be

produced. The government of Bangladesh has, therefore, given special emphasis for planting different fruit trees and medicinal plants over the country. In this situation, improved variety of fruit and medicinal saplings/seedlings are very essential for distribution among the farmers and other enthusiastic people. A huge number of private, NGOs, and government plant nurseries have been established in different parts of the country and are playing an important role for successful implementation of tree plantation as well as forestation programme in the country. Therefore, detail information about the plant nursery business would help the researchers as well as policy makers for the improvement of the business.

Nurseries have proven essential in ensuring availability of Quality Planting Material (QPM) at local level, ensuring their multiplication but also providing technical assistance to farmers. To foster exchanges and strengthen their business, nursery owners have over the course of the years formed upazila level associations: the Upazila Nursery Malik Samities (UNMS). As their capacities and organizational strength grew over time, the UNMS have organized themselves at district level and formed the DNMS (District Nursery Malik Samities). These allow nurseries to establish better linkages to public research and extension as well as technical support. In turn, the DNMS formed a national level platform of nursery owners with the objective to promote the interests of nursery owners at national and policy level. The National Nursery Society was formed and is now working towards playing an active role to support the capacity development of its members, conduct policy advocacy at national level and promote the nursery business throughout the country. The institutionalization of the nursery enterprises and their associations has proven key to the development and sustainability of the agroforestry sector in Bangladesh. Nursery practices must be consistent and the various techniques closely integrated. If one element in the chain is missing there will be a negative impact on seedling quality. Good quality seedlings cannot be produced without care and tending. Nursery plants need to be protected from extreme environmental influences until they are strong enough to withstand them. Unfortunately, except some economic studies (Islam *et al.*, 1998), no study has been conducted for this plant nursery management or nursery

business. There are some questions are need to be answered. It is therefore analyzed to determine the extent of problems faced by the nursery owners in seedling production.

1.2 Statement of the Problem

Problems faced by the nursery owners mean the difficulties that the nursery owners face in lack of quality seed, damage by cattle, insect and pest attack in nursery, non-availability of fertilizers and pesticides, irrigation water etc.

In some cases, the nursery owners are not familiar with modern techniques of seedling production. In the field area, it is possible to create some awareness among the nursery owners by the field level workers. The concerned nursery owners may face many problems in seedling production. It is therefore, important to have adequate understanding on problems faced in seedling production by nursery owners. Therefore, a research study entitled "Problems faced by the nursery owners in seedling production" has been undertaken.

Considering the problems faced in seedling production at field level, this study should be designed to find out the following research questions:

1. What are the different characteristics of the nursery owners?
2. What is the extent of problems faced by the nursery owners in seedling production?
3. Is there any have relationship between the nursery owners problems faced in seedling production and their selected characteristics?
4. What are the level of severity of different types of problems faced by the nursery owners in seedling production?

1.3 Objectives of the Study

The following specific objectives were formulated to give proper direction to the study:

1. To determine the extent of problems faced by the nursery owners in seedling production

2. To determine and describe following selected characteristics of the nursery owners:
    - Age
    - Level of Education
    - Nursery area
    - Training exposure
    - Annual income
    - Marketing facility
    - Capital investment
    - Input availability
    - Organizational Participation
3. To explore the relationships between the selected characteristics of the nursery owners and their extent of problem faced in seedling production
4. To compare the severity among the problems faced by the nursery owners in seedling production.

1.4 Justification of the study

The development of the agroforestry sector has brought substantial benefits, not only to the 7.2 million farmers who have bought quality planting material and consequently realized a combined increase in income of 172,800 million BDT over the last project phase, but also for the nurseries.

It is therefore, urgently necessary to devise ways and means to increase seedling production by identifying the problems and by minimizing the problems.

The findings may however, be useful as a policy tool for planners, research personnel, extension workers, administrators and development workers.

1.5 Assumptions of the Study

An assumption is the supposition that an apparent fact or principle is true in the light of the available evidence (Goode, 1945). The researcher had the following assumptions in mind while undertaking this study:

1. The study respondents were competent enough to furnish proper responses to the questions contained in the interview schedule.
2. The researcher who acted as interviewer feels comfortable with study areas social and environmental conditions. Hence, the data collected by her from the respondents were free from bias.
3. The responses furnished by the respondents were valid and reliable.
4. Respondents views and opinions were the representative views and opinions of the whole population of the study area.
5. The findings might have general application to other parts of the country where similar socio-economic and cultural conditions are in view.

1.6 Limitation in the Study

From the research point of view, it is necessary to impose certain limitations. The possible limitations are as follows :

1. The study was confined to only 3 selected seedling producing villages of Savar Upazilla in Dhaka.
2. Characteristics of the farmers are many and varied, but only nine characteristics were selected for investigation in this study.
3. Population for the present study was kept confined within the heads of the nursery families, as they were the major decision makers regarding seedling producing.
4. The researcher depended on only the data as furnished by the selected nursery owners during interview.

1.7 Definition of Terms

For clarity of understanding, a number of key concepts/terms frequently used throughout the study, these are defined as follows:

Age: Age of a respondent was defined as the span of life and was operationally measured by the number of years from his/her birth to the time of interviewing.

Annual family income: Annual family income referred to the total earnings of a respondent and the members of her/his family from agricultural and non-agricultural sources (business, services, daily labour etc.) during the previous year.

Education: Education refers to the extent of formal schooling of a farmer in schools, colleges or universities at the time of interview. Education was measured in term of actual years of successful schooling.

Nursery area: Nursery area of an owner refers to the area, on which his/her family carries out seedling production operations and was expressed in hectare.

Input availability: Input availability refers to some essential elements like modern varieties, fertilizers, insecticides, irrigation water, and farm implements etc. which are directly or indirectly useful in seedling production.

Organizational participation: Organizational participation of an individual refers to his/her participation in various organizations as ordinary member, executive committee member or executive officer within a specified period of time.

Training exposure: It refers to the total number of days attended by the trainee in his/her life to the agro-based training courses.

Problem faced: Problem faced refers to a difficult situation about which something needs to be done. Problems faced in seedling production refer to different problems as perceived by the nursery owners in seedling production.

CHAPTER II

REVIEW OF LITERATURE

The aim of this chapter is to describe the review of past researches conducted in line of the major focus of this study. Literature having relevance to the present study has been reviewed in three sections. The first section deals with the literature on problems faced by the farmers in producing various crops, the second section deals with review of studies dealing with the relationship of selected characteristics with problem faced. Finally, the last section of this chapter deals with the conceptual framework of the study.

2.1 Problem faced by the nursery owners in different agricultural aspects

Unfortunately, very little studies were found which dealing with the problem faced by the nursery owners in seedling production. However research work related to problem confrontation by the farmers in different aspects of agriculture are presented below:

Zinyama (1988) conducted a relative observation to find out the farmers perceptions of the constraints against increased crop production in the subsistence communal farming sector of Zimbawe. He examined the problems faced by the subsistence farmers in the small-scale communal farming areas of Zimbabwe. During field survey, samples of farming households were asked to indicate what they considered to be the major obstacles hindering them from increasing their crop production. Five of the most frequently cited constrains were: (i) Lack of money with which to purchase seasonal agricultural inputs, particularly fertilizers, (ii) lack of basic farming implements, notably the ox-driven single furrow plough, (iii) lack of draught cattle, (iv) inadequate arable land and (v) inadequate family labour for agricultural work.

Biswas (1992) in his study, identified farmers' faced problems in cotton cultivation. Non availability of quality seed in time, unfavorable and high cost of fertilizer and insecticides, lack of operating capital, not getting fair weight and reasonable price according to grade, effects of cattle in cotton field, lack of technical knowledge. Lack of storage facility, stealing from field at maturity stage, and late buying of raw

cotton by cotton Development Board were identified as major problems of cotton farmers in Jessore district.

Freeman and Berth (1994) conducted a study on issues in African Rural Development Study showed several constrains in farming practices such as intensified land use, fallow periods decline and crop cultivation spreads into marginal or ecologically fragile lands. In the absence of appropriate resource management technologies, these practices inevitably lead to degradation of the resource base with important implications for soil productivity, household food security and rural poverty.

Ismail (2001) conducted a study on farm youth of haor area of Mohangonj upazila. Study revealed that there were six top problems in rank order were (i) no arrangement of loan for the farm youth for fishery cultivation, (ii) lack of government programmes in agriculture for the farm youth, (iii) absence of loan giving agencies for establishing farm in 1-10 daily, (iv) general people face problem for fishery due to government leasing of Jalmohal, lack of government programmes for establishing poultry farm, (vi) lack of agricultural loan for the farm youth.

Halim (2003) conducted a study on constraints faced by the farmers in adopting to their rank order were: (i) lack of storage facilities for products and seeds, (ii) high price of inputs, (iii) non-availability of credit for other crops, (iv) lack of sufficient training programme in different aspects of crop diversification and (v) most of the lands are in low lying areas and not suitable for CDP crops.

Salam (2003) in his study identified constrains in adopting environmentally friendly farming practices. Top six identified constraints according to their rank order were: (i) low production due to limited use of fertilizer (ii) lack of organic matter in soil, (iii) lack of Govt. support for environmentally friendly farming practices, (iv) lack of capital and natural resources for integrated farming practices, (v) lack of knowledge on integrated farm management and (vi) unavailability of pest resistant varieties of crops.

Pramanik (2001) made an extensive, study on the twenty-four problems of farm youth in Mymensingh villages relating to different problems in crop cultivation. Out of twenty-

four problems tile top four problems in rank order were: i) local NGO take high rate of interest against a loan. ii) Lack of agricultural machinery and tools, iii) lack of cash and iv) financial inability to Arrange improved seeds, fertilizer and irrigation.

Chander and Singh (2003) in their study identified for aspects of constrains in adoption of MP practices *viz.* technological constraints, economical constrains services, supply and marketing constrains and transfer of technology constraints. They also opined that economic constraints faced by the farmers at most serious level.

Uddin (2004) in his study identified five aspect of constraints in commercial cultivation of vegetables viz. seed constraints, disease and insect infestation constraints, field management constraints, marketing of vegetable constraints and extension work constraints. Among these aspects of constrains he revealed disease and pest infestation constraints severely faced by the farmers.

2.2 Relationship between selected characteristics of the respondents and their problem faced

2.2.1 Age and problem faced

Rahman (2006) found that age of the farmers had no significant relationship with their constraints faced in Banana cultivation of Sunargaon Upazilla under Narayangonj district.

Huque (2006) found that age of the farmers had no significant relationship with their problem faced in using integrated plant nutrient management.

Basher (2006) found that age of the farmers had significant negative relationship with their problem confrontation in mashroom cultivation.

Aziz (2006) found that age of the farmers had no significant relationship with their constraints faced in potato cultivation in Jhikargacha upazilla under Jessore district.

Bhople (2005) conducted a study and found that there was no relationship between age of the nursery owners and their problem confrontation in seedling production.

Bhuiyan (2002) in his study found a positive and significant relationship between age of the age and their constraint in banana cultivation.

Rashid (2003) found that age of the rural youth had significant negative relationship with problem confrontation in selected agricultural production activities.

2.2.2 Education and problem faced

Hoque (2006) found that education of the farmers had highly significant negative relationship with their problem faced in using integrated plant nutrient management.

Basher (2006) found that education of the farmers had significant negative relationship with their problem faced in mashroom cultivation.

Nahid (2005) conducted a study and found that there was very high significant negative relationship between education of the sugarcane growers and their problem faced in sugarcane production.

The study of Ismail (2001) revealed that there was no significant relationship between education and problem faced of farm youth.

2.2.3 Nursery area and problem faced

Tewari (2005) conducted a study and found that there was a significant negative relationship between sugarcane farm size of the nursery owners and their problem faced in seedling production.

Basher (2006) found that sugarcane cultivation area of the farmers had significant negative relationship with their problem faced in mashroom cultivation.

2.2.4 Training exposure and problem faced

Van den Ban (2003) conducted a study and found that there was significant relationship between training exposure of the nursery owners and their problem confrontation in seedling production.

2.2.5 Annual income and problem faced

Hazra (2006) conducted a study and found that there was a very high significant negative relationship between annual income of the nursery owners and their problem confrontation in seedling production.

Hoque (2006) found that annual family income of the farmers had no significant relationship with their problem faced in using integrated plant nutrient management.

2.2.6 Marketing facility and problem faced

Aalbaek (2001) conducted a study and found that there was a very high significant negative relationship between marketing facility of the nursery owners and their problem confrontation in seedling production.

2.2.7 Capital investment and problem faced

Hazra (2006) conducted a study and found that there was a very high significant negative relationship between capital investment of the nursery owners and their problem confrontation in seedling production.

2.2.8 Input availability and problem faced

No literature was found related to relationship between input availability and problem faced by the nursery owners.

2.2.9 Organizational participation and problem faced

Aalbaek (2001) conducted a study and found that there was a very high significant negative relationship between organizational participation of the nursery owners and their problem confrontation in seedling production.

2.3 The Conceptual Framework of the Study

This study was concerned with the problem faced by the nursery owners in seedling production. Thus the problem faced on seedling production activities was the main focus of the study. It is not possible to deal with all characteristics in a single study. It was therefore, necessary to limit the characteristics, which include age, education, nursery area, training exposure, annual family income, marketing facility, capital investment, input availability and organizational participation.

Based on related literature review & discussion the conceptual model of this study has been formulated and shown in the Figure 2.1

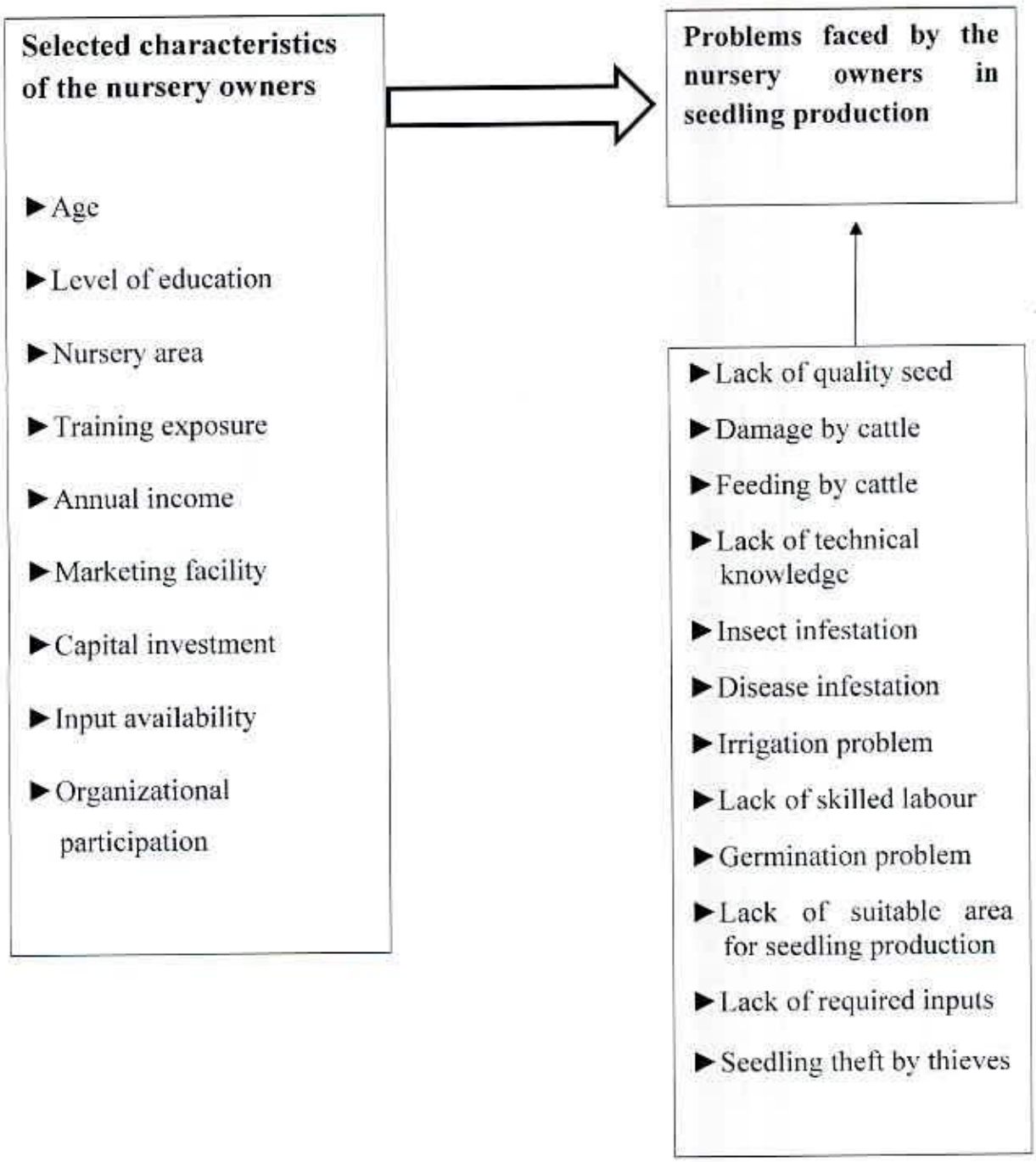

Figure 2.1. The Conceptual Framework of the Study

CHAPTER III

METHODOLOGY

The method and procedure used in the study are presented in this chapter. The principal method used in this study was field survey using structured interview schedule. In any scientific research methodology plays an important role. To perform a research work systematically, careful consideration of appropriate methodology is a must. It should be such that it would enable the researcher to collect valid and reliable information to arrive at correct decisions. The methods and procedures followed in conducting this study have been described in this Chapter in the following sections.

3.1 Locale of the Study

Three village of Savar Upazilla, namely, Kodmi, Dosaid and Charabag, were purposively selected as the locale of the study. The figure 3.1 is showing Savar Upazilla of Dhaka district and the study area under Savar Upazilla.

3.2 Population and Sampling

The nursery owners being involved in seedling production under savar upazilla were considered as the population for this study. An updated list of 120 nursery owners was prepared researcher herself with the help of horticulture wing of DAE. By taking 25% out of 120 farmers, a sample of 30 nursery owners was selected by following random sampling method. Simultaneously a reserve list of 5 farmers was prepared to use in case of non-availability of selected farmers.

Table 3.1 Distribution of the population, sample and reserve list for the study

Village	Number of the nursery owners		Reserve list
	Population	Sample	
Kodmi	40	10	2
Dosaid	30	8	1
Charabag	50	12	2
Total	120	30	5

Figure 3.1. A map of Savar upazila showing study area

3.3 Instrument for Collection of Data

In order to collect relevant data, an interview schedule was prepared keeping the objectives of the study in mind. The schedule contained both closed and open-ended questions. Simple and direct questions were also included in the schedule in order to avoid the ambiguous questions. Direct questions were included to collect information like age, education, family size etc. Scales were used to measure the input availability, marketing facility, organizational participation & extent of problem faced by the nursery owners.

An English version of the interview schedule is presented in "Appendix-A". The schedule was pre-tested with 3 nursery owners of the study area excluded the sample. Necessary correction, addition, alternation and modifications were made in the interview schedule on the basis of the pre-test. The modified and corrected interview schedule was then printed in final form for data collection.

3.4 Data collection

The researcher herself collected data for this study personally through interviewing the respondents by using the interview schedule. Appropriate rapport was established with the respondents before going to collect relevant information. However, if any respondent failed to understand any question, the researcher took necessary care to explain the matter. Data collection was started on 12 April, 2014 and completed on 11 may, 2014.

3.5 Measurement of Variables

3.5.1 Measurement of Independent Variables

In this study nine selected profiles namely age, level of education, nursery area, training exposure, annual income, marketing facility, capital investment in nursery, input availability and organizational participation were selected as the independent variables. Measurements of the variables are discussed below:

Age

Age of a respondent was measured on the basis of year from his/her birth to the time of interview. A score of one (1) was assigned for each years of his/her age.

Education

The education was measured on the basis of completed years of schooling by a respondent in the educational institutions. A score of one (1) was given for each completed year of schooling. If a respondent does not know how to read and write his/her score was assigned as zero. A score of 0.5 was given to a respondent who only can sign his/her name only.

Nursery area

The nursery area of a respondent was measured on the basis of the area on which his/her family carried out nursery operations. The area of nursery was expressed in hectare.

Training exposure

Training exposure of a respondent was measured by the total number of days for which a respondent attended in different training programs on agriculture.

Annual income

It referred to the total earnings in thousand taka by all the family members of a respondent from nursery, others crop, poultry, livestock, fisheries, business, service, daily labour, others during a year.

Marketing facility

Marketing facility of a respondent was measured on the basis of the nature facility available. Following the scoring system score was assigned for computing marketing facility score:

'0' for not at all
'1' for low facility
'2' for moderate facility
'3' for high facility

Capital investment

It was measured by accounting the total investment of the respondents in their nursery. A score of one was assigned for one thousand taka investment.

Input availability

Input availability refers to the availability of some selected inputs for nursery, like quality seed, propagating materials, fertilizers and growth regulator/rooting hormone, poly bag and tub. Scores were assigned as 3, 2, 1 and 0 for high availability, moderate availability, low availability and no availability respectively. Thus, input availability score of the farmers could range from 0 to 15, where 0 indicated no input availability and 15 indicated highest input availability

Organizational participation

Organizational participation of a respondent was measured on the basis of the nature and duration of his / her involvement in different 5 formal agro-based organizations in the study area.

Score '0' for no involvement

Score l for ordinary member

Score 2 for executive member

Score 3 for executive officer

3.5.2 Measurement of dependent variable

Problem faced by the nursery owners was the dependent variable of this study. For measuring problem confrontation in nursery management by owners 12 problem were selected after through consultation with the relevant experts, researchers and from other available sources. The nature of responses of the respondents to each of the 12 problems were 'severe problem', 'moderate problem', 'little problem' and 'no problem 'and scores were assigned as 3, 2. 1 and 0 respectively. Finally problem faced in nursery management score of the owners was measured by adding up all the scores of all the responses to all the 12 problems of that respondent. Thus, the possible score of the problem confrontation in nursery management of a

respondent could range from 0 to 36 while 0 indicating no problem and 36 indicating very high problem faced in nursery management.

3.5.3 Comparative Problem Faced Index

Twelve problems were selected for the study after thorough consultation with supervisor and relevant experts. The respondents were asked to respond to four alternative responses as 'severe problem', 'moderate problem', 'little problem' and 'no problem' for each of seven selected problems. Scores were assigned to those alternative responses as 3, 2, 1, and 0, respectively. Then Problem Faced Index (PFI) of each of the seven problem items were determined by using the following formula:

$$PFI = (P_s \times 3) + (P_m \times 2) + (P_l \times 1) + (P_n \times 0)$$

Where,

PFI = Problem Faced Index

P_s= Number of respondents faced severe problem

P_m = Number of respondents faced moderate problem

P_l = Number of respondents faced little problem

P_n= Number of respondents faced no problem

Problem Faced Index (PFI) in nursery of each problem was computed by adding all the scores obtained against that problem for all respondents. Thus, PFI in nursery management of the items could range from 0 to 90 where '0' indicated no problem and 90 indicated highest problem.

3.6 Hypothesis

The following null hypothesis was formulated to explore the relationships of the selected characteristics of the nursery owners with their problem faced in seedling production.

"There is no relationship between each of the nine selected characteristics of the nursery owners and their extent of problems faced in seedling production".

3.7 Data Processing

After completion of field survey, all the data were coded, compiled and tabulated according to the objectives of the study. Local units were converted into standard units. All the individual responses to questions of the interview schedule were transferred in to a master sheet to facilitate tabulation, categorization and organization. In case of qualitative data, appropriate scoring technique was followed to convert the data into quantitative form.

3.8 Statistical Procedures

The statistical measures such as range, means, standard deviation, number and percentage distribution were used to describe the variables. Pearson's Product Moment Correlation Co-efficient was used in order to explore the relationships between the concerned variables. Five percent (0.05) level of probability was used as the basis for rejection of any null hypothesis.

CHAPTER IV

FINDINGS AND DISCUSSION

The purpose of this chapter is to describe the findings of the present study. The first section deals with the selected characteristics of the nursery owners, while the second section deals with the problem faced by the nursery owners in seedling production; relationship between the selected characteristics of the nursery owners and their problem faced in seedling production has been discussed in the third section; and the comparative severity among the problems faced by the nursery owners in seedling production in the last section.

4.1 Selected Characteristics of the nursery owners

Nine characteristics of the nursery owners were selected for this research. The characteristics include: age, level of education, nursery area, training exposure, annual income, marketing facility, capital investment, input availability and organizational participation.

4.1.1 Age

The age of the respondents ranged from 25 to 63 years with an average of 41.03 and a standard deviation of 9.45. On the basis of their age, the beneficiaries were classified into three categories as shown in Table 4.1.

Table 4.1 Distribution of the respondents according to their age

SL. No.	Categories	Number	Percentage	Mean	Standard deviation
1	Young aged (up to 35 years)	10	33.30	41.03	9.45
2	Middle aged (31 to 50 years)	18	60.00		
3	Old aged (above 50 years)	2	6.70		
Total		30	100		

Three fifth (60.00 percent) of the nursery owners were middle aged while 33.30 percent of them were young aged and only 6.70 percent old aged.

4.1.2 Education

The level of education of the respondent ranged from 0 to 16. The average being 8.93 and standard deviation was 4.08. Based on their education scores, the respondents were classified into three categories as shown in Table 4.2.

Table 4.2 Distribution of the respondents according to their education

SL. No.	Categories	Number	Percentage	Mean	Standard deviation
1	Illiterate	1	3.30	8.93	4.08
2	Primary level (1 to 5)	9	30.10		
3	Secondary level (6 to 10)	10	33.30		
4	Above secondary level	10	33.30		
Total		30	100		

Data presented in the Table 4.2 indicate that 66.60 percent of the nursery owners had secondary to above secondary level of education while 30.10 percent had the primary level of education.

4.1.3 Nursery area

Nursery area of the respondents ranged from 0.068 to 0.96 hectare and the average being 0.36 hectare and standard deviation of 0.24. Depending on nursery area the respondents were classified into three categories as shown table 4.3.

Table 4.3 Distribution of the respondents according to their nursery area

SL. No.	Categories	Number	Percentage	Mean	Standard deviation
1	Small (<mean – 0.5 sd, i.e Upto 0.24 ha)	7	23.30	0.36	0.24
2	Medium (mean ± 0.5 sd, i.e 0.25 to 0.48 ha)	18	60.00		
3	Large (>mean + 0.5 sd, i.e> 0.48 ha)	5	16.70		
Total		30	100		

Data contained in Table 4.3 indicates that the highest proportion (60 percent) of nursery owners had medium nursery area compared to 23.30 percent having small and 16.70 percent large nursery area.

4.1.4 Training exposure

The score of training exposure of the nursery owners ranged from 0 to 30 days, the mean being 10.51 and standard deviation of 12.25. Based on training exposure, the farmers were classified into three categories as shown in Table 4.4.

Table 4.4 Distribution of the respondents according to their training exposure

Categories	Respondent farmers		Mean	Standard Deviation
	Number	Percent		
Very low training exposure (upto 10 days training)	18	60	10.51	12.25
Low training exposure (11 to 20 days training)	3	10		
Medium training exposure (above 20 days training)	9	30		
Total	30	100		

Data contained in Table 4.4 indicates that majority (60 percent) of the nursery owners had very low training exposure; while 30 percent of the nursery owners had medium exposure and 10 percent had low training exposure.

4.1.5 Annual income

Annual income scores of the respondents ranged from 100 to 1500. An average of yearly income score of the respondents was 435.50 and standard deviation of 354.48. According to the annual income scores, the respondents were classified into three categories as shown in Table 4.5.

Table 4.5 Distribution of the respondents according to their annual income

SL. No.	Categories	Number	Percentage	Mean	Standard deviation
1	Law (<mean – 0.5 sd, i.e<258.26 thousand Tk)	11	36.70	435.50	354.48
2	Medium (mean ± 0.5 sd, i.e 258.26– 612.74 thousand Tk.)	14	46.60		
3	High (>mean + 0.5 sd, i.e>612.74 thousand Tk.)	5	16.70		
Total		30	100		

From the Table 4.5, it was observed that the highest portion (46.6 percent) of the farmers had medium annual family income compared to 36.70 percent having low and only 16.70 percent had high annual family income.

4.1.6 Marketing facility

The score of marketing facility of the nursery owners ranged from 1 to 3, the mean being 2.40 and standard deviation of 0.56. Based on marketing facility, the nursery owners were classified into three categories as shown in Table 4.6.

Table 4.6 Distribution of the respondents according to their marketing facility

Categories (Score)	Respondent farmers		Mean	Standard Deviation
	Number	Percent		
Low (up to 1)	1	3.30	2.40	0.56
Medium (2)	16	53.40		
High (3)	13	43.30		
Total	30	100		

Data contained in Table 4.6 indicates that the above two fourth (53.40 percent) of nursery owners had medium marketing facility compared to 23.30 percent had high marketing facility and 3.30 percent had low marketing facility.

4.1.7 Capital investment

The score of capital investment of the nursery owners ranged from 120 to 400, the mean being 138.33 and standard deviation of 98.53. Based on capital investment, the nursery owners were classified into three categories as shown in Table 4.7.

Table 4.7 Distribution of the respondents according to their capital investment

SL. No.	Categories	Number	Percentage	Mean	Standard deviation
1	Small (<mean – 0.5 sd, i.e<89.07 thousand Tk.)	11	36.70	138.33	98.53
2	Medium (mean ± 0.5 sd, i.e 89.07– 187.59 thousand Tk.)	10	33.30		
3	Large (>mean + 0.5 sd, i.e>187.59 thousand Tk.)	9	30.00		
Total		30	100		

Data contained in Table 4.6 indicates that the largest proportion (36.70 percent) of nursery owners had small capital investment compared to 33.30 percent had medium capital investment and 30 percent had large capital investment.

4.1.8 Input availability

The observed input availability scores of the nursery owners ranged from 8 to 13 against the possible range of 0 to 15, the average being 11.23 and standard deviation of 1.45. On the basis of the input availability scores, the farmers were classified into two categories as shown in Table 4.8.

Table 4.8 Distribution of the respondents according to their input availability

Categories (Score)	Respondent farmers		Mean	Standard Deviation
	Number	Percent		
Low (up to 9)	2	6.70	11.23	1.45
Medium (10 to 11)	15	50.00		
High (12 to 13)	13	43.30		
Total	30	100		

Data contained in Table 4.8 indicates that the half (50 percent) of nursery owners had medium input availability compared to 43.30 percent had high input availability and 6.70 percent had low input availability.

4.1.9 Organizational participation

The observed organizational participation scores of the nursery owners ranged from 3 to 15 with the mean of 7.26 and standard deviation of 3.93. Based on their organizational participation scores, the farmers were divided into three categories as shown in Table 4.9.

Table 4.9 Distribution of the respondents according to their organizational participation

Categories (score)	Respondent farmers		Mean	Standard Deviation
	Number	Percent		
Low participation (up to 7)	16	53.30	7.26	3.93
Medium participation(8 to 11)	9	30		
High participation (above 11)	5	16.70		
Total	30	100		

Data contained in Table 4.4 indicates that majority (53.30 percent) of the nursery owners had low participation exposure; while 30 percent of the nursery owners had medium participation and 16.70 percent had high participation.

4.2 Problems Faced by the nursery owners in nursery management

In this study, the computed problems faced by the nursery owners in nursery management scores ranged from 11 to 25 against the possible 0 to 36. The mean score was 17.00 and standard deviation was 4.46. Based on the problems faced scores, the nursery owners were classified into three categories as shown in Table 4.10.

Table 4.10 Distribution of the respondents according to problems faced in nursery management

Categories (score)	Respondent farmers		Mean	Standard Deviation
	Number	Percent		
Little problem (up to 12)	7	23.30	17.00	4.46
Medium problem (13 to 24)	20	66.70		
High problem (above 24)	3	10.00		
Total	30	100		

Data contained in Table 4.10 indicates that majority (66.70 percent) of the nursery owners had medium problem while 23.3 percent of the nursery owners had low problem and 10.00 percent had high problem.

4.3 Relationship between the selected characteristics of the nursery owners and their problems faced in seedling production

Coefficient of correlation was computed in order to explore the relationship between the selected characteristics of the nursery owners and their problems faced in nursery. The selected characteristics constituted the independent variables and problems faced in seedling production by the nursery owners constituted the dependent variable.

In order to determine the relationship between nine selected characteristics of the nursery owners viz. age, level of education, nursery area, training exposure, annual income, marketing facility, capital investment, input availability and organizational participation and the dependent variable i.e., Problems faced by the nursery owners in seedling production, Pearson's Product Moment Correlation statistical technique was used. Co-efficient of correlation (r) has been used to test the null hypothesis concerning the relationship between the variables. Five percent level of significance was used as the basis for rejection of any null hypothesis.

The summery of the results of the Co-efficient of Correlation indicating the relationship between the selected characteristics of the nursery owners and their problems faced in seedling production are shown in Table 4.11.

Table 4.11 Co-efficient of Correlation (r) showing relationship between the respondents' selected characteristics and the problems faced in seedling production

Dependent variable	Independent variable	Computed value "r"	Tabulated value of "r" with 130 df at	
			0.05 level	0.01 level
Problems Faced by the nursery owners in nursery	Age	-0.340 NS	0.361	0.462
	Level of education	-0.235 NS		
	Nursery area	-0.314 NS		
	Training exposure	-0.830**		
	Annual income	-0.379*		
	Marketing facility	-0.609**		
	Capital investment	-0.654**		
	Input availability	-0.687**		
	Organizational participation	-0.744**		

NSNot significant
* Significant at the 0.05 level
**Significant at the 0.01 level

4.3.1 Relationship between age of the nursery owners and their problems faced in seedling production

Relationship between age of the nursery owners and their problems faced in seedling production was determined by testing the null hypothesis: "There is no relationship between age of the nursery owners and their problems faced seedling production".

The computed value of the co-efficient of correlation (r) between the concerned variables was (-0.340) as shown in Table 4.11. The following observations were made based on the coefficient of correlation (r) value.

- The relationship showed a negative trend.

- The computed value of 'r' (0.340) was smaller than the tabulated value `r' (0.361) with 28 degrees of freedom at 0.05 levels of probability.
- The concerned null hypothesis would not be rejected.

The findings demonstrate that age of the nursery owners had no significant relationship with their problems faced in seedling production. This indicated that age of the nursery owners was not an important factor for their problems faced in seedling production.

4.3.2 Relationship between level of education of the nursery owners and their problems faced in seedling production

Relationship between level of education of the nursery owners and their problems faced in seedling production was determined by testing the null hypothesis: "There is no relationship between level of education of the nursery owners and their problems faced in seedling production".

The computed value of the co-efficient of correlation (r) between the concerned variables was (-0.235) as shown in Table 4.11. The following observations were made regarding the relationship between the two variables on basis of the coefficient of correlation (r) value.

- The relationship showed a negative trend.
- The computed value of 'r' (0.235) was smaller than the tabulated value `r' (0.361) with 28 degrees of freedom at 0.05 levels of probability.
- The concerned null hypothesis would not be rejected.

The findings demonstrate that level of education of the nursery owners had no significant relationship with their problems faced in seedling production. This indicated that level of education of the nursery owners was not an important factor for their problems faced in seedling production.

4.3.3 Relationship between nursery area of the nursery owners and their problems faced seedling production

Relationship between nursery area of the nursery owners and their problems faced in seedling production was determined by testing the null hypothesis: "There is no relationship between nursery area of the nursery owners and their problems faced in seedling production".

The computed value of the co-efficient of correlation (r) between the concerned variables was (-0.314) as shown in Table 4.11. The following observations were made regarding the relationship between the two variables on basis of the coefficient of correlation (r) value.

- The relationship showed a negative trend.
- The computed value of 'r' (0.314) was smaller than the tabulated value 'r' (0.361) with 28 degrees of freedom at 0.05 levels of probability.
- The concerned null hypothesis would not be rejected.

The findings demonstrate that nursery area of the nursery owners had no significant relationship with their problems faced in seedling production. This indicated that nursery area of the nursery owners was not an important factor for their problems faced in seedling production.

4.3.4 Relationship between training exposure of the nursery owners and their problems faced in seedling production

Relationship between training exposure of the nursery owners and their problems faced in seedling production was determined by testing the null hypothesis: "There is no relationship between training exposure of the nursery owners and their problems faced in seedling production".

The computed value of the co-efficient of correlation (r) between the concerned variables was (-0.830) as shown in Table 4.11. The following observations were made regarding the relationship between the two concerned variables on basis of the coefficient of correlation (r) value.

- The relationship showed a negative trend.
- The computed value of 'r' (0.830) was larger than the tabulated value `r' (0.462) with 28 degrees of freedom at 0.01 levels of probability.
- The concerned null hypothesis would be rejected.

The findings demonstrate that training exposure of the nursery owners had significant negative relationship with their problems faced in seedling production. This meant that the nursery owners having more training exposure faced fewer problems in seedling production.

4.3.5 Relationship between Annual income of the nursery owners and their problems faced in seedling production

Relationship between annual income of the nursery owners and their problems faced in seedling production was determined by testing the null hypothesis: "There is no relationship between annual income of the nursery owners and their problems faced in seedling production".

The computed value of the coefficient of correlation (r) between the concerned variables was (-0.379) as shown in Table 4.11. The following observations were made regarding the relationship between the two variables on basis of the coefficient of correlation (r) value.

- The relationship showed a negative trend.
- The computed value of 'r' (0.379) was larger than the tabulated value `r' (0.361) with 28 degrees of freedom at 0.05 levels of probability.
- The concerned null hypothesis would be rejected.

The findings demonstrate that annual income of the nursery owners had significant negative relationship with their problems faced in seedling production. This meant that the nursery owners having more annual income faced fewer problems in seedling production.

4.3.6 Relationship between marketing facility of the nursery owners and their problems faced in seedling production

Relationship between marketing facility of the nursery owners and their problems faced in seedling production was determined by testing the null hypothesis: "There is no relationship between marketing facility of the nursery owners and their problems faced in seedling production".

The computed value of the coefficient of correlation (r) between the concerned variables was (-0.609) as shown in Table 4.11. The following observations were made regarding the relationship between the two variables on basis of the coefficient of correlation (r) value.

- The relationship showed a negative trend.
- The computed value of 'r' (0.609) was larger than the tabulated value 'r' (0.462) with 28 degrees of freedom at 0.01 levels of probability.
- The concerned null hypothesis would be rejected.

The findings demonstrate that marketing facility of the nursery owners had significant negative relationship with their problems faced in seedling production. This meant that the nursery owners having more marketing facility faced fewer problems in seedling production.

4.3.7 Relationship between capital investment of the nursery owners and their problems faced in seedling production

Relationship between capital investment of the nursery owners and their problems faced in seedling production was determined by testing the null hypothesis: "There is no relationship between capital investment of the nursery owners and their problems faced in seedling production".

The computed value of the coefficient of correlation (r) between the concerned variables was (-0.654) as shown in Table 4.11. The following observations were made regarding the relationship between the two variables on basis of the coefficient of correlation (r) value.

- The relationship showed a negative trend.
- The computed value of 'r' (0.654) was larger than the tabulated value `r' (0.462) with 28 degrees of freedom at 0.01 levels of probability.
- The concerned null hypothesis would be rejected.

The findings demonstrate that capital investment of the nursery owners had significant negative relationship with their problems faced in seedling production. This meant that the nursery owners having more capital investment faced fewer problems in seedling production.

4.3.8 Relationship between input availability of the nursery owners and their problems faced in seedling production

Relationship between input availability of the nursery owners and their problems faced in seedling production was determined by testing the null hypothesis: "There is no relationship between input availability of the nursery owners and their problems faced in seedling production".

The computed value of the coefficient of correlation (r) between the concerned variables was (-0.687) as shown in Table 4.11. The following observations were made regarding the relationship between the two variables on basis of the coefficient of correlation (r) value.

- The relationship showed a negative trend.
- The computed value of 'r' (0.687) was larger than the tabulated value `r' (0.462) with 28 degrees of freedom at 0.01 levels of probability.
- The concerned null hypothesis would be rejected.

The findings demonstrate that input availability of the nursery owners had significant negative relationship with their problems faced in seedling production. This meant that the nursery owners having more input availability faced fewer problems in seedling production.

4.3.9 Relationship between organizational participation of the nursery owners and their problems faced in seedling production

Relationship between organizational participation of the nursery owners and their problems faced in seedling production was determined by testing the

null hypothesis: "There is no relationship between organizational participation of the nursery owners and their problems faced in seedling production".

The computed value of the coefficient of correlation (r) between the concerned variables was (-0.744) as shown in Table 4.11. The following observations were made regarding the relationship between the two variables on basis of the coefficient of correlation (r) value.

- The relationship showed a negative trend.
- The computed value of 'r' (0.744) was larger than the tabulated value `r' (0.462) with 28 degrees of freedom at 0.01 levels of probability.
- The concerned null hypothesis would be rejected.

The findings demonstrate that organizational participation of the nursery owners had significant negative relationship with their problems faced in seedling production. This meant that the nursery owners having more organizational participation faced fewer problems in seedling production.

4.4 Comparative severity among the problems faced by the nursery owners in seedling production

The observed Problem Faced Index of the problems ranged from 21 to 61 against the possible range of 0-90. Problem Faced Index (PFI) of the selected problems are shown in Table 4.12.

On the basis of PFI, it was observed that "lack of suitable area for seedling production" ranked first followed by "lack of technical knowledge", "lack of skilled labour", " disease infestation", "insect infestation", "lack of quality seed", "lack of required inputs", "irrigation problem", "damage by cattle", "feeding by cattle", "germination problem", "seedling theft by thieves".

Table 4.12 Rank order of the problem faced by the nursery owners in seedling production

SL. No	Problem items	PFI	Rank order
1	Lack of suitable area for seedling production	61	1
2	Lack of technical knowledge	59	2
3	Lack of skilled labour	58	3
4	Disease infestation	57	4
5	Insect infestation	52	5
6	Lack of quality seed	46	6
7	Lack of required inputs	34	7
8	Irrigation problem	33	8
9	Damage by cattle	32	9
10	Feeding by cattle	30	10
11	Germination problem	28	11
12	Seedling theft by thieves	21	12

CHAPTER V

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of findings

5.1.1 Individual characteristics of the respondents

Age: The highest proportion (60.70 percent) of the nursery owners were middle aged while 33.30 percent of them were young aged and only 6.70 percent old aged.

Level of Education: The highest proportion (66.60 percent) of the nursery owners had completed secondary to above secondary level of education while 30.10 percent had completed the primary level of education.

Nursery area: The largest proportion (60 percent) of nursery owners had medium nursery area compared to 23.30 percent having small and 16.70 percent large nursery area.

Training exposure: Majority (60 percent) of the nursery owners had very low training exposure; while 30 percent of the nursery owners had medium exposure and 10 percent had low training exposure.

Annual income: The highest portion (46.6 percent) of the farmers had medium annual family income compared to 36.70 percent having low and only 16.70 percent had high annual family income.

Marketing facility: The largest proportion (53.40 percent) of nursery owners had medium marketing facility compared to 23.30 percent had high marketing facility and 3.30 percent had low marketing facility.

Capital investment: The largest proportion (36.70 percent) of nursery owners had small capital investment compared to 33.30 percent had medium capital investment and 30 percent had large capital investment.

Input availability: The half (50 percent) of nursery owners had medium input availability compared to 43.30 percent had high input availability and 6.70 percent had low input availability.

Organizational participation: Majority (53.30 percent) of the nursery owners had low participation exposure; while 30 percent of the nursery owners had medium participation and 16.70 percent had high participation.

5.1.2 Problems Faced by the nursery owners in nursery management

Majority (66.70 percent) of the nursery owners had medium problem while 23.3 percent of the nursery owners had low problem and 10.00 percent had high problem.

5.1.3 Relationship between selected characteristics of the nursery owners and their problems faced in seedling production

Among nine selected characteristics of the nursery owners, 6 namely, training exposure, annual income, marketing facility, capital investment, input availability and organizational participation had significant negative relationship with their problems faced in nursery and the rest 3 characteristics namely, age, level of education, nursery area had no significant relationship with their problems faced in seedling production.

5.1.4 Comparative severity among the problems faced by the nursery owners in seedling production

The observed Problem Faced Index of the problems ranged from 27 to 61 against the possible range of 0-90. Problem Faced Index (PFI) of the selected problems are shown in Table 4.12.

On the basis of PFI, it was observed that "Lack of suitable area for seedling production" ranked first followed by "Lack of technical knowledge", "Lack of skilled labour", " Disease infestation", "Insect infestation", "Lack of quality seed", "Lack of required inputs", "Irrigation problem", "Damage by cattle", "Feeding by cattle", "Germination problem", "Seedling theft by thieves".

5.2 Conclusions

Following conclusions were drawn on the basis of findings, logical interpretation and other relevant facts of the study:

1. Above three fourth (76.70 percent) of the nursery owners had medium to high problem and Lack of suitable area for seedling production ranked the first problem followed by lack of technical knowledge and lack of skilled labour.
2. An overwhelming (90 percent) of the nursery owners had very low and medium training exposure, while there was a negative significant relationship between training exposure of the nursery owners and their problem faced. Therefore, it may be concluded that the nursery owners having more training exposure faced fewer problems in seedling production.
3. An overwhelming (83.3percent) of the nursery owners had small to medium annual income while there was a negative significant relationship between annual income of the nursery owners and their problem faced. Therefore, it may be concluded that the nursery owners having more annual income faced fewer problems in seedling production.
4. More than half (53.40 percent) of nursery owners had medium marketing facility while there was a negative significant relationship between marketing facility of the nursery owners and their problem faced. Therefore, it may be concluded that the nursery owners having more marketing facility faced fewer problems in seedling production.
5. Above two third (70 percent) of nursery owners had small to medium capital investment while there was a negative significant relationship between capital investment of the nursery owners and their problem faced. Therefore, it may be concluded that the nursery owners having more capital investment faced fewer problems in seedling production.
6. An overwhelming (93.3 percent) of the nursery owners had medium to high input availability while there was a negative significant relationship between input availability of the nursery owners and their problem faced. Therefore, it may be concluded that the nursery owners having more input availability faced fewer problems in seedling production.

7. An overwhelming (83.3 percent) of the nursery owners had low to medium organizational participation while there was a negative significant relationship between organizational participation of the nursery owners and their problem faced. Therefore, it may be concluded that the nursery owners having more organizational participation faced fewer problems in seedling production.

5.3.1 Recommendations

Based on the findings of the study some recommendations can be suggested-

1. The present study revealed that the nursery owners have been facing a lot of problems moderately to seriously in seedling production where lack of suitable area for seedling production ranked first followed by lack of technical knowledge and lack of skilled labour. It is, therefore, recommended that effective steps should be taken to minimize these problems by providing necessary information, training, technical advice and credit facility. It may be further recommended that serious problems should be taken under consideration.

2. Training exposure of the nursery owners in nursery seems to minimize their problem faced. So, it is recommended that both of the Govt. and NGOs should take initiative for the nursery owners arranging more farming program.

3. The study revealed that marketing facility and annual income of the nursery owner had significant relationships with problem faced in seedling production. So, it is recommended that the Govt. and other concerned authority should ensure more marketing facility for the nursery owners which will improve their income ability.

4. The study revealed that the nursery owners having more capital investment faced fewer problems in seedling production. So, it is recommended that the Govt. and private banks should consider larger loans for each cycle when the nursery owners are experienced and must have some financial security.

5. The study revealed that the nursery owners having more input availability faced fewer problems in nursery management. So, it is recommended that the

Govt. and other concerned authority should make available input for the nursery owners.

6. The study revealed that the nursery owners having more organizational participation faced fewer problems in seedling production. So, it is recommended that the other concerned authority should motivate and inspired them to take part in different organizations.

5.3.2 Recommendations for further research

1. The study investigated the relationships of the nine selected characteristics of the nursery owners with their problems faced in seedling production. But nursery owner's problems in seedling production might be affected by other various personal, social, psychological, cultural and situational factors of the nursery owners. It is, therefore, recommended that further study should be conducted involving other characteristics in this regard.
2. This study was conducted on the population of nursery owners of Savar upazila in Dhaka district. Findings of this study need to be verified by undertaking similar research in other parts of the country.

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(English Version of the Interview Schedule)

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An Interview Schedule for a Research Study Entitled: **PROBLEMS FACED BY THE NURSERY OWNERS IN SEEDLING PRODUCTION**

Serial No. : ---------- Upazila : ----------

Name of the respondent : ---------- District : ----------

Father's Name /Husband's Name: ----------

Village : ----------

Union : ----------

(Please answer the following question)

1. Age:

What is your age? ---------- Years.

2. Level of Education:

What is your level of education?

a) Can not read and write ( )

b) Can sign only ( )

c) I read up to class ----------

d) I passed ---------- class.

3. Nursery area:

Please mention your nursery area.

Local unit..... Hectare.....

4. Training exposure

Please provide information about your training received:

Nature of training	Duration (days)	Organizations

5. Annual income:

Mention your annual income including income from nursery:

Income source	Amount (tk.)
Nursery	
Others agricultural crop	
Livestock	
Fisheries	
Service	
Business	
Others	
Total	

6. Marketing facility:

Mention about marketing facility of your seedling. (Please put tick mark):

Not at all ( )

Low facility ( )

Moderate facility ( )

High facility ( )

7. Capital investment in nursery:

How much capital you involved in your nursery?

.....Tk.

8. Input availability:

Please provide information about input availability for your nursery:

Sl. No.	Inputs	Extent of Input availability			
		High availability (3)	Moderate availability (2)	Low availability (1)	Not be available at all (0)
1.	Quality seed				
2.	Propagating materials				
3.	Fertilizers and growth regulator/rooting hormone				
4.	Poly bag				
5.	Tub				

9. Organizational participation:

Please mention your involvement with the following organizations:

Sl. No.	Organization	Extent of participation			
		Executive officer	**Executive committee member**	**General member**	**No participation**
1.	Nursery owners association				
2.	IPM Club				
3.	School committee				
4.	Mosque/Madrasa/Mandir committee				
5.	Village farmers' co-operative society				

10. Problems faced in nursery management:

Please mention the extent of problems you faced in nursery management

Sl. No.	Problems	Extent of problems			
		Severe problem	Moderate problem	Low problem	No problem
1.	Lack of quality seed				
2.	Damage by cattle				
3.	Feeding by cattle				
4.	Lack of technical knowledge				
5.	Insect infestation				
6.	Disease infestation				
7.	Irrigation problem				
8.	Lack of skilled labour				
9.	Germination problem				
10	Lack of suitable area for seedling production				
11.	Lack of required inputs				
12.	Seedling theft by thieves				

Thanks for your kind co-operation.

Signature of interviewer

Date .....

Appendix-B

Correlation matrix among the variables of the study (N=30)

	V_1	V_2	V_3	V_4	V_5	V_6	V_7	V_8	V_9	Y
V_1	-									
V_2	-0.028	-								
V_3	0.122	-0.237	-							
V_4	0.274	0.277	0.409*	-						
V_5	0.415*	0.238	0.572**	0.394*	-					
V_6	0.405*	0.237	0.250	0.799**	0.327	-				
V_7	0.594**	0.267	0.490**	0.694**	0.716**	0.640**	-			
V_8	0.298	0.322	0.177	0.569**	0.525**	0.556**		-		
V_9	0.198	0.010	0.581**	0.878**	0.299	0.712**	0.715**	0.524**	-	
Y	-0.340	-0.235	-0.314	-0.830**	-0.379*	-0.609**	0.662**	-0.687**	-0.744*	-

* Correlation is significant at the 0.05 level **Correlation is significant at the 0.01 level

V_1= Age

V_2 = Level of Education

V_3 = Nursery area

v_4 = Training exposure

V_5 = Annual income

V_6 = Marketing facility

V_7 = Capital investment

V_8 = Input availability

V_9 = Organizational Participation

Y = problems faced in seedling production