

**PROBLEM CONFRONTATION OF THE OWNERS IN
NURSERY MANAGEMENT**

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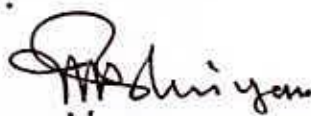
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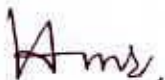
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CERTIFICATE

This is to certify that the thesis entitled **“Problem Confrontation of the Owners in Nursery Management”** 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 Agricultural Extension and Information System**, embodies the result of a piece of bona fide research work carried out by **Taneem Ahmed**, Registration No. **00163** 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:
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**DEDICATED
TO
MY BELOVED FRIENDS**

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ABSTRACT

The purpose of the study was to determine the problems confronted by the owners in nursery management and to explore the relationship between the selected characteristics of the owners and their problem confrontation in nursery management. Five types of problems of the owners in nursery management were selected. The selected characteristics were: age, education, family size, experience in nursery raising, land possession, area used for nursery, annual family income, extension contact, training exposure, cosmopolitaness and knowledge on nursery management. The study was performed in 7 upazillas under Chandpur District. Data were collected from 72 nursery owners using an interview schedule. Scale score was used to determine the owners' problem in nursery management and a Problem Confrontation Index (PCI) was used to compare among the 5 types of selected problems. For the statistical analysis Pearson's Product Moment Correlation was applied. Majority (83%) of the owners were found confronted medium problem, while 4% of the owners confronted low problems and 13% confronted high problem in nursery management. Among the 11 selected characteristics of the nursery owners' age and education of the nursery owners had significant positive relationship with their problem confrontation in nursery management. Family size, land possession, annual family income, training exposure and cosmopolitaness of the owners had non-significant negative relationship with their problem confrontation in nursery management. Experience in nursery raising, extension contact of the owners and knowledge on nursery management had no significant relationship with their problem confrontation in nursery management. Area used for nursery of the owners had significant negative relationship with their problem confrontation in nursery management. On the basis of Problem Confrontation Index (PCI) "Lack of credit facilities" ranked first which is followed by Non-cooperative marketing, Lack of suitable land, Lack of skilled workers, Low price of seedlings/saplings, Insects problem, Insufficient supply of quality seeds/seedlings, High salary of the workers, Inadequate improved mother trees, Scarcity of organic manure, Diseases problem, Flood problem, Advertisement problem, Inefficient use of input by workers, Low work output per day from workers, Problems in Raising seedlings/ saplings, Lack of seed collection and storage facilities, Inefficient supervision, Unavailability of inputs, Problems in Soil preparation for pot or poly bag, Problems in Seed bed preparation and Problems in Fertilizer doses ranked the last.



Chapter 1

INTRODUCTION

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1.1 General Background

Bangladesh is a land of natural diversity. Crop production and forest development are the main components of natural diversity. Crop fields, green woods and trees are the major part of this nature. There are about 19621 thousands acres of cultivable land where field crops and horticultural crops are grown almost all the year round. The forest land of the county is composed of natural forestry, social forestry and agro forestry that cover about 6420 thousands acres of land scattered in Sundarban, Silhet, Sal forest in Modhupur, Tangail, Mymansingh, Chittagong Hill Tracts and Cox's Bazar where plants grows naturally. Human intervention in natural forestry declines its growth and development which is accelerating the rate of deforestation with loss of ecosystem, wildlife and biological diversity, leading to overall environmental deterioration. However, social forestry and agro forestry have been developed through socio-economic development plan throughout the country. The forest of Bangladesh has been recorded to cover 35% of the land in 1919 and 25% in 1936 but at present this has shrunk to 17.08% of either forest or potential forest land whereas crop production covers almost all the cultivable land. (Agriculture Statistics, BBS, 2010).

According to Forestry Statistics in Bangladesh, the estimated forest area of the country is about 2.53 million ha ($0.02 \text{ ha person}^{-1}$) and this is about 17.5 per cent of the total land base of Bangladesh (unpublished data). Of this forest land, the Forest Department directly controls 1.53 million ha having the legal status of reserved forest and protected forest. The District Administration controls 0.73 million ha of unclassified state forests and the remaining 0.27 million ha belong to the category of privately owned village forest. However, the Forest Resources

Assessment 2000 (FAO, 2001) indicates only 10.2 percent of the land area of Bangladesh as forest.

Due to poor growth of industries, rural people of Bangladesh still largely depend upon crop production, social forestry and agro forestry for their livelihood. Some town and city dwellers are seen to be inborn naturalist that inspire to decorate their houses with plants and flowers. Some are engaged in roof gardening as well. As there is continued demographic pressure – 975 people km⁻² (FAO, 2003) in one hand and decreasing of cultivable land on the other, the rural people make their effort to produce crops, fruits, vegetables and timber from the limited small piece of land. In the near past, farmers of Bangladesh grew crops, vegetables, plants and trees with their self preserved seeds. They themselves raised seedlings and saplings for tree plantation. That is, the same persons produced crops, seeds, seedlings and saplings. But now a day some agricultural operations have become specialized. Thus, crop production and seed and seedling/ saplings production turned into different specialized functions. Stem from the situation nursery business emerged in Bangladesh since the independence of Bangladesh.

Huge population and limited land area compelled policy makers to think about alternatives to traditional forest management. One alternative, social forestry, which means that participation of local people to manage the existing forest and expansion of forest cover through forestry plantations such as woodlot, agro forestry and strip plantation. The system was introduced in Bangladesh in early 1980s and has proved to be extremely successful. While traditional forest management resulted in a net loss of forest resource cover, social forestry on the other hand, is playing a vital role in the expansion of forest cover (40,387 ha of new forest cover and 48,420 km new strip plantation since the mid-1980s benefiting thousands of poor people.(Muhammed *et al.*, 2004)

The national economy of Bangladesh is mainly agro based. The high population growth rate (1.36%) is creating depression on agriculture. Most of them have

nutritional deficiency. In order to meet the nutritional demand of increasing population of the country, a large amount of fruits and vegetables needs to be produced. In this situation, we have to ensure maximum production from limited land area. Thus, traditional agricultural practices should be changed. As an alternative, nursery practice can be a unique program through which more economic return can be achievable from same unit of land against traditional agriculture. Pioneer people and businessmen are attracted to the establishment of nursery for the development of national agriculture as well as forestry. Different national and international non government organizations and government organizations are also working on this issue. They are developing specific programs simultaneously to create interest and making active participation of all types of people to this sector of agriculture.

The government of Bangladesh has, therefore, given special emphasis for planting different fruit trees, timber and medicinal plants over the country. In this situation, improved variety of fruit, timber and medicinal saplings/seedlings are very essential for distribution among the farmers, other enthusiastic individuals, different groups and organizations. Moreover, some agronomic and horticultural crops seedlings like rice, tomato, brinjal, gourds, cauliflower, cabbage, papaya etc need to be raised before transplanting in the main field. For good production, healthy agriculture and healthy forestry needs healthy seeds, seedlings or saplings. So nurseries can supply these seeds, seedlings or saplings. 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 improved agricultural crop production in the country. Plant nursery business also creates a great employment opportunity in the country (Haque *et al.*, 2007).

From the above discussion, we can say that there is a high demand of seedlings/saplings of different trees and crops throughout the country and plant

nursery business is highly profitable also. But there is little information about the problems of the owners in nursery management. Considering the importance of nursery business, the researcher has become interested to conduct a study on **“Problem confrontation of the owners in nursery management”**

1.2 Statement of the Problem

In plant nursery business, there have been some problems associated with nursery management which are being faced by the owners. The researcher developed a felt need to conduct this sort of research. So he is interested to undertake research entitled **“Problem confrontation of the owners in nursery management”**. The study aimed at providing information regarding the following queries:

- i. What are the problems being confronted by the nursery owners in nursery management?
- ii. What are the owners' characteristics that directly related to their problems confrontation in nursery management?
- iii. What is the relationship between the owners' characteristics and problem confrontation in nursery management?

1.3 Specific Objectives of the Study

In view of the problems as stated above, the following specific objectives were set to give an appropriate track to the research work-

1. To determine and describe the extent of problems confronted by the owners in nursery management.
2. To determine and describe some selected characteristics of nursery owners.

The selected characteristics were:

- I. Age
 - II. Education
 - III. Family size
 - IV. Experience in nursery raising
 - V. Land possession
 - VI. Area used for nursery
 - VII. Annual family income
 - VIII. Extension contact
 - IX. Training exposure
 - X. Cosmopolitanness
 - XI. Knowledge on nursery management
3. To explore the relationship between the selected characteristics of the nursery owners and their extent of problems confrontation in nursery management.

1.4 Justification of the Study

The present study was instigated in order to have an understanding of the problem of the owners in nursery management. The findings of the study will be helpful to the nursery owners because the finding will make them aware of the problems in nursery management as well as can make out the solutions easily. It is assumed that if the problems could be identified successfully, more entrepreneurs will be

encouraged to invest in setting plant nursery and new business development will be occurred in this sector which will contribute a lot to the national development program in Bangladesh. The study will be beneficiary particularly to the social forestry, agro forestry, overall forestry program and agriculture in general. Thus the study has a great significance to the national extension service, to the national policy makers, to the farmers/owners and researchers of plant nursery.

1.5 Statement of Hypothesis

According to Karlinger (1973), a hypothesis is a conjectural statement of the relation between two or more variables. A null hypothesis states that there is no relationship between the concerned variables. The following null hypothesis was undertaken for the present study:

There is no relationship between the selected characteristics of owners with their problem confrontation in nursery management. The related characteristics are age, education, family size, experience in nursery raising, land possession, area used for nursery, annual family income, extension contact, training exposure, cosmopolitaness, and knowledge on nursery management.

1.6 Scope of the Study

The present study was designed to have an understanding of the problems confronted by the owners in nursery management and to explore its relationship with their selected characteristics.

Particularly, the finding of the study will be pertinent to Chandpur district. Nevertheless, the findings may also be applicable to other areas of Bangladesh where socio-cultural, economical and the psychological condition do not differ much than those of the study area. The findings of the study will be helpful to the extension service, to the national policy makers, to the farmers/owners and researchers of plant nursery. At last, it is assumed that the recommendation of the

study will be helpful in formulating extension policy makers for reducing the obstacles of nursery management and encouraging more entrepreneurs to invest in setting nursery.

1.7 Limitation of the Study

In order to make the study convenient and meaningful for the research purpose, imposing some limitations were essential. The limitations are as follows:

- I. The study was conducted in 7 upazillas of Chandpur district.
- II. The study was limited mainly to problem confrontation of the owners in nursery management.
- III. The characteristics of the nursery owners are varied in different aspects, but the time, money and other resources did not allow the researcher to include all of them in the study. So, only 11 characteristics of the nursery owners and their problems confronted in nursery management were selected for exploration in the study.
- IV. A variety of problems in nursery management were likely to be confronted by the owners. However, particularly 5 types of problems have been considered for this study.

In order to gather the information for the study, the researcher was dependent on the data provided by the selected respondents during data collection.

1.7 Assumption of the Study

An assumption is the supposition that an apparent fact or principle is true in the light of available evidence (Goode and Hatt, 1952). The researcher had following assumptions while undertaking this study:

- I. The respondents selected for the study were able to supply appropriate responses to the questions included in the interview schedule.
- II. The responses provided by the respondents were reliable. They conveyed the truth about their sincerity and awareness.
- III. Opinions and views provided by the respondents included in the sample were the representative views and opinions of the whole population of the study area.
- IV. The researcher who acted as the interviewer was well adjusted to the social and cultural environment of the study area. So the respondents supplied their correct opinions without hesitation.

1.9 Definition of Terms

The terms which have been frequently used throughout the thesis are defined and interpreted below:

Nursery

A nursery is a place where plants are propagated and grown to useable size. They include retail nurseries which sell to general public, wholesale nurseries which sell only to business such as other nurseries and to commercial gardeners, and private nurseries which supply the needs of institutions or private estates. (Wikipedia)



Management

Management in all business and organizational activities is the act of getting people together to accomplish desired goals and objectives using available resources efficiently and effectively. (Wikipedia)

Problem

Problem refers to a difficult situation about which something needs to be done. Problem, however, may be defined as the difference between desired situation and the present situation (Kashem, 1977).

Problem Confrontation in Nursery Management

In this study problem confrontation of the owners refers to the degree to which they faced difficulties in nursery management.

Age

Age of a respondent was defined as the period of time from his birth to the time of interview in years.

Education

It means the formal education of a nursery owner which is considered by the number of years spent to acquire formal education.

Family size

It refers to actual number of permanent members in a nursery owner's family who lived in a fixed dwelling unit and ate from the same cooking arrangement.

Experience in nursery raising

It refers to the years an individual nursery owner is involved in nursery raising.

Land possession

It refers to the total cultivated area either owned by a person or obtained from others on share cropping system. The area is being estimated in terms of full benefit and half benefit to the person respectively. The self owned land as well as land taken from others on lease is considered as full benefit.

Area used for nursery

It refers to the land area which is particularly used for the nursery by the nursery owners.

Annual family income

It refers to the total annual earnings by the all family members of a nursery owner from agriculture, livestock, fisheries and other accessible sources like business, service, daily labor etc.

Extension contact

It refers to an individual's exposure to or contact with different communication media and sources and personalities being used for dissemination of new technologies among the nursery owners.

Training exposure

It refers to the total number of days that a respondent received training in his entire life from different organizations under different training programs on nursery.

Cosmopolitaness

It refers to an individual exposure outside his own social environment, his exposure to the nearest village, own union or upazilla, other upazillas or districts or places of social and agricultural importance.

Knowledge on nursery management

It refers to the understanding of the respondents about different aspect of nursery management.

Agroforestry

It is an integrated approach of using the interactive benefits from combining trees and shrubs with crops and/or livestock. It combines agricultural and forestry technologies to create more diverse, productive, profitable, healthy, and sustainable land-use systems. A narrow definition of agroforestry is "trees on farms." (Wikipedia)

Strip Plantation

This plantation works are mainly done on the both sides of roads constructed by the Board. Initially under plantation were timber, fodder, & fuel but the trend has been changed in recent years. Emphasis has been given on plantation of fruit bearing trees under this programme. The departmental Mazdoors and hired laborers do the plantation work. A policy framework for involving NGOs and voluntary organizations in planting and maintaining the same is under consideration of the Board. (Department of Sundarban Affairs, Govt. of West Bengal)

CHAPTER 2

REVIEW OF LITERATURE

The purpose of this chapter is to review the past studies conducted by different researchers related to the present study. This was mainly aimed to have an understanding of the problem confrontation of the owners in nursery management and their relationship with selected characteristics. The researchers extensively reviewed the available literature to search out related works in Bangladesh as well as in other countries.

This chapter consists of the following:

1. The first section is concerned with literature relating to problem confrontation of the farmers in different agricultural aspects.
2. The second section contains the review on the past studies concerning the relationships between dependent and independent variables.
3. The third section presents a conceptual framework of the study.

2.1 Problem confrontation of the Farmers in Different Agricultural Aspects

Kashem (1987) found some obstacles that inhibit farmer in rapid adoption of modern rice cultivation which were: fertilizer obstacles, plant protection obstacles, irrigation obstacles and other cultural obstacles.

Zinyama (1988) conducted a relative observation to find out the farmers perception of the constraints against increased crop production in the subsistence communal farming sector of Zimbabwe. During the field survey, he found five of the most frequently cited problems that were: 1) Lack of money to purchase seasonal agricultural inputs, particularly fertilizers, 2) Lack of basic farming implements, notably the ox- driven single furrow plough, 3) Lack of draught

cattle, 4) Inadequate arable land and 5) Inadequate family labor for agricultural work.

Biswas (1992) in his study, identified problems faced by the farmers in cotton cultivation in Jessore district which were : 1) Non availability of quality seeds in time, 2) Unfavorable and high cost of fertilizers and insecticides, 3) Lack of operating capital 4) Not getting fair weight and reasonable price according to grade 5) Affects of cattle in cotton fields 6) Lack of technical knowledge 7) Lack of storage facilities 8) Stealing from field at maturity stage 9) Late buying of raw cotton by Cotton Development Board .

Freeman and Berth (1994) conducted a study on issues in African Rural Development which showed several barriers in farming practices such as 1) Intensified land use, 2) fallow period decline 3) crop cultivation spread 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 of soil productivity, household food security and rural poverty.

Ismail (2001) in his study on farm youth of haor area Mohangonj upazilla revealed six top problems in rank order which were: 1) No arrangement of loan for the farm youth for fishery cultivation 2) Lack of government programs in agriculture for the farm youth 3) Absence of loan giving agencies for establishing farm in the locality 4) General people face problem for fishery due to government leasing of Jalmohal 5) Lack of government programs for establishing poultry farms 6) Lack of agricultural loan for the farm youth.

Salam (2003) conducted a study on constraints faced by the farmers in adopting environmentally friendly farming practices and identified top six constraints according to their rank order were: 1) Low production due to limited use of fertilizer 2) Lack of organic matter in soil 3) Lack of government support for

environment friendly farming practices 4) Lack of capital and natural resources for integrated farming practices 5) Lack of knowledge on integrated farm management and 6) Unavailability of pest resistant varieties of crops.

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

Afrad et al. (2004) in their study of farmers problem confrontation towards vegetable cultivation identified problems viz. soil is unfit for vegetable cultivation, severe pest attack, excessive rainfall, high soil moisture during vegetable seed sowing, vegetable cultivation needs additional care, lack of irrigation water.

Uddin (2004) in his study revealed five aspects of constraints in commercial cultivation of vegetables viz. seed constraints, disease and insect infestation constraints, field management constraints, marketing of vegetables constraints and extension work constraints.

Bashar (2006) in his study revealed five top problems in mushroom cultivation, in rank order which were: 1) Boundness of the farmers to supply commodities to the middleman in low price 2) High price of spawn 3) Complexity to get Mushroom cultivation credit 4) low demand in local market 5) High rate of interest of Mushroom cultivation credit.

Mannan et al. (2006) in their study found three vital problems confronted by the nursery owners at Phultala Upazilla of Khulna which were: 1) lack of loan facilities 2) Low market price 3) Diseases and insects infestation.

Anisuzzaman (2008) in his study identified seven top problems in tuberose cultivation, in rank order which were: 1) Cultivation cost is high 2) Inadequate

credit supply of Tuberose cultivation 3) Lack of capital 4) Lack of training opportunity 5) lack of storage to preserve of Tuberose 6) Proper contact with extension staff 7) Boundness of the farmers to supply commodities to middleman in low price.

Hossain (2011) in his study recognized five top problems towards seed potato production, in rank order which were: 1) Lack of quality seed 2) Disease problem 3) Insect problem 4) High price of quality seed 5) Lack of knowledge on quality seed potato production.

2.2 Review of Past Studies Concerning the Relationship between Dependent and Independent Variables

2.2.1 Age and problem confrontation

Rahman (1995) conducted a study and found that there was no significant relationship between the age of the farmers and their faced constraints in cotton cultivation. Similar findings were achieved by Ali (1999), Pramanik (2001), Ahmed (2002), Hossain (2002), Salam (2003) and Halim (2003) in their respective studies.

Bhuiyan (2002) in his study found a positive significant relationship between age of the farmers and their constraints in banana cultivation. Similar findings were achieved by Rahman (1996) in his respective study.

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

Nahid (2005) conducted a study and found that there was no relationship between age of the sugarcane growers and their problem confrontation in sugarcane production.

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

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.

Bashar (2006) found that age had significant negative relationship with problem confrontation in mushroom cultivation.

Anisuzzaman (2008) found that age had no significant relationship with problem confrontation in tuberose cultivation.

Hossain (2011) found that age had no significant relationship with problem confrontation towards seed potato production.

2.2.2 Education and problem confrontation

Kashem (1977) found a significant negative relationship between education of landless laborers and their problem confrontation. Nath (1976), however, found a negative relationship between general education of the Union Assistant and their problem confrontation.

Hoque (2001) found a significant negative relationship between education and problem confrontation of the FFS farmers in practicing IPM.

Ismail (2001) revealed that there was no significant relationship between education and problem confrontation of farm youth. Similar findings were obtained by Halim (2003) in his respective study.

Nahid (2005) in his study found very high significant negative relationship between education of the sugarcane growers and their problem confrontation in sugarcane production.



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

Aziz (2006) found that education of the farmers had very high significant negative relationship with their constraints faced in potato cultivation in Jhikargacha upazilla under Jessore district.

Bashar (2006) found that education had significant negative relationship with problem confrontation in mushroom cultivation.

Anisuzzaman (2008) found that education had significant negative relationship with problem confrontation in tuberose cultivation.

Hossain (2011) found that education had no significant relationship with problem confrontation towards seed potato production.

2.2.3 Family size and problem confrontation

Haque (1995) found that there was no significant relationship between family size and problem confrontation of the Mohila Bittaheen Samabaya Samittee. Similar findings were achieved by Rashid (1999), Bhuiyan (2002), Hossain (2002) and Ahmed (2002) in their respective studies.

Salam (2003) in his study found a positive significant relationship between family size and their constraints in adopting environment friendly farming practices.

Nahid (2005) conducted a study and found that there was no significant relationship between family size of the sugarcane growers and their problem confrontation in sugarcane production.

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

Rahman (2006) found that family size of the farmers had no significant relationship with their constraints faced in banana cultivation of Sonargaon Upzilla under Narayangonj district.

Aziz (2006) found that family size of the farmers had very high significant negative relationship with their constraints faced in potato cultivation in Jhikargacha upazilla under Jessore district.

Bashar (2006) found that family size had no significant relationship with problem confrontation in mushroom cultivation.

Anisuzzaman (2008) found that family size had no significant relationship with problem confrontation in tuberose cultivation.

2.2.4 Experience and problem confrontation

Basher (2006) found that there was no significant relationship between the experience in mushroom cultivation of the farmers and their problem confrontation in mushroom cultivation.

Anisuzzman (2008) found a significant negative relationship between experience in Tuberose cultivation and their problem confrontation in tuberose cultivation.

Hossain (2011) found a significant negative relationship between experience in potato production of the farmers and their problem confrontation towards seed potato production.

2.2.5 Farm size and problem confrontation

Rahman (1995) found that farm size of the farmers had a significant negative relationship with their problem confrontation in cotton Cultivation. Similar findings were obtained by Hossain (1985), Islam (1987), Mansur (1989), Rahman (1996), Ismail (2001) and Ahmed (2002) in their respective studies.

Nahid (2005) revealed that high significant negative relationship between total farm sizes of the sugarcane growers and their problem confrontation in sugarcane production.

Haque (2006) found that farm size of the farmers had no relationship with their problem faced in using integrated plant nutrient management.

Rahman (2006) found that farmsize of the farmers had no significant relationship with their constraints faced in banana cultivation of Sonargaon upazilla under Narayangonj district.

Aziz (2006) found that farm size of the farmers had a very high significant negative relationship with their constraints faced in potato cultivation in Jhikargacha upazilla under Jessore district.

Bashar (2006) found that land possession had significant negative relationship with problem confrontation in mushroom cultivation.

Anisuzzaman (2008) found that farm size had no significant relationship with problem confrontation in tuberose cultivation.

Hossain (2011) found that farm size had no significant relationship with problem confrontation towards seed potato production.

2.2.6 Area used for nursery and problem confrontation

Basher (2006) found a negatively significant relationship between Mushroom cultivation area and problem confrontation in mushroom cultivation.

Anisuzzaman (2008) found no significant relationship between area used for Tuberose cultivation and their problem confrontation in tuberose cultivation.

2.2.7 Annual family income and problem confrontation

Hossain (1989) in his study found a significant positive relationship between income and constraints faced by the landless laborers.

Rahman (1995) found that a negative and substantially significant relationship between annual income of the farmers and their faced constraints in Cotton cultivation.

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

Rahman (2006) found that annual family income of the farmers had a very high negative significant relationship with their constraints faced in banana cultivation of Sonargaon upazilla under Narayangonj district.

Bashar (2006) found that annual family income had highly significant negative relationship with problem confrontation in mushroom cultivation.

Anisuzzaman (2008) found that annual family income had no significant relationship with problem confrontation in tuberose cultivation.

Hossain (2011) found that annual family income of the farmers had no significant relationship with problem confrontation towards seed potato production.

2.2.8 Extension contact and problem confrontation

Rahman (1995) in his study found that extension contact of the farmers had a significant negative relationship with their constraints faced in cotton cultivation. Similar findings were achieved by Rahman (1996), Faroque (1997), Pramanik (2001), Hossain (2002), Bhuiyan (2002), Ahmed (2002), Salam (2003) and Halim (2003) in their respective studies.

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

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

Rahman (2006) found that extension media contact of the farmers had no significant relationship with their constraints faced in banana cultivation of Sonargaon upazilla under Narayanganj district.

Basher (2006) found that extension media contact of the farmers had significant negative relationship with their problem confrontation in mushroom cultivation.

Anisuzzaman (2008) found that extension media contact of the farmers had significant negative relationship with their problem confrontation in tuberose cultivation.

Hossain (2011) found a significant negative relationship between extension media contact of the farmers and their problem confrontation towards seed potato production.

2.2.9 Training exposure and problem confrontation

Nahid (2005) found that there was no significant relationship between training exposure of the sugarcane growers and their problem confrontation in sugarcane production.

Bashar (2006) found that training exposure of the farmers had highly significant negative relationship with their problem confrontation in mushroom cultivation.



Anisuzzaman (2008) found that there was a negatively significant relationship between training exposure of the farmers and their problem confrontation in tuberose cultivation.

Hossain (2011) found a significant negative relationship between training experience of the farmers and their problem confrontation towards seed potato production.

2.2.10 Cosmopolitaness and problem confrontation

Kashem (1977) found that there was a negative relationship between cosmopolitaness of the landless laborers and their constraints faced.

Haque (1995) in his study revealed a strong positive relationship between cosmopolitaness of the sugarcane growers and their constraints in sugarcane cultivation. Similar findings were obtained by Khan (1993) and Parveen (1993) in their respective studies.

Bashar (2006) found that cosmopolitaness of the farmers had significant negative relationship with their problem confrontation in mushroom cultivation.

Anisuzzaman (2008) found that there was a negatively significant relationship between cosmopolitaness of the farmers and their problem confrontation in tuberose cultivation.

2.2.11 Knowledge and problem confrontation

Raha (1989) found in his study that farmers' knowledge in irrigated modern Boro paddy had no significant relationship with their irrigation problem confrontation. Anwar (1994), Karim (1996), Rashid (1999), Ismail (2001), Salam (2003) and Rashid (2003) found similar in their respective studies.

Basher (2006) found that knowledge on Mushroom cultivation of the farmers had significant negative relationship with their problem confrontation in mushroom cultivation.

Anisuzzaman (2008) found that knowledge on Tuberose cultivation of the farmers had significant negative relationship with their problem confrontation in tuberose cultivation.

Hossain (2011) found a significant negative relationship between knowledge on potato production of the farmers and their problem confrontation towards seed potato production.

2.3 A Conceptual Framework of the Study

In scientific research, selection and measurement of variables constitute an important task. The hypothesis of a research while constructed properly consists at least two important elements i.e. “a dependent variable” and “an independent variable”. A dependent variable is a factor that appears, disappears or varies as the researcher introduces, removes or varies the independent variables.

The conceptual framework of Rosenberg and Hovland (1960) was kept in mind while making structural arrangements for the dependent and independent variables. This study is concerned with the problems confrontation of the owners in nursery management. Thus the problem confrontation was the dependent variable and 11 selected characteristics of the owners were the considered as the independent variables. Problems of an individual may be affected through interacting forces of many independent variables. It is not possible to deal with all independent variables in a single study. Therefore, it was necessary to limit the independent variables, which included age, education, family size, land possession, experience in nursery raising, area used for nursery, annual family income, extension contact, training exposure, cosmopolitaness and knowledge on nursery management.

In the light of foregoing discussion, a conceptual framework has been developed for this study, which is diagrammatically shown in the Figure 2.1

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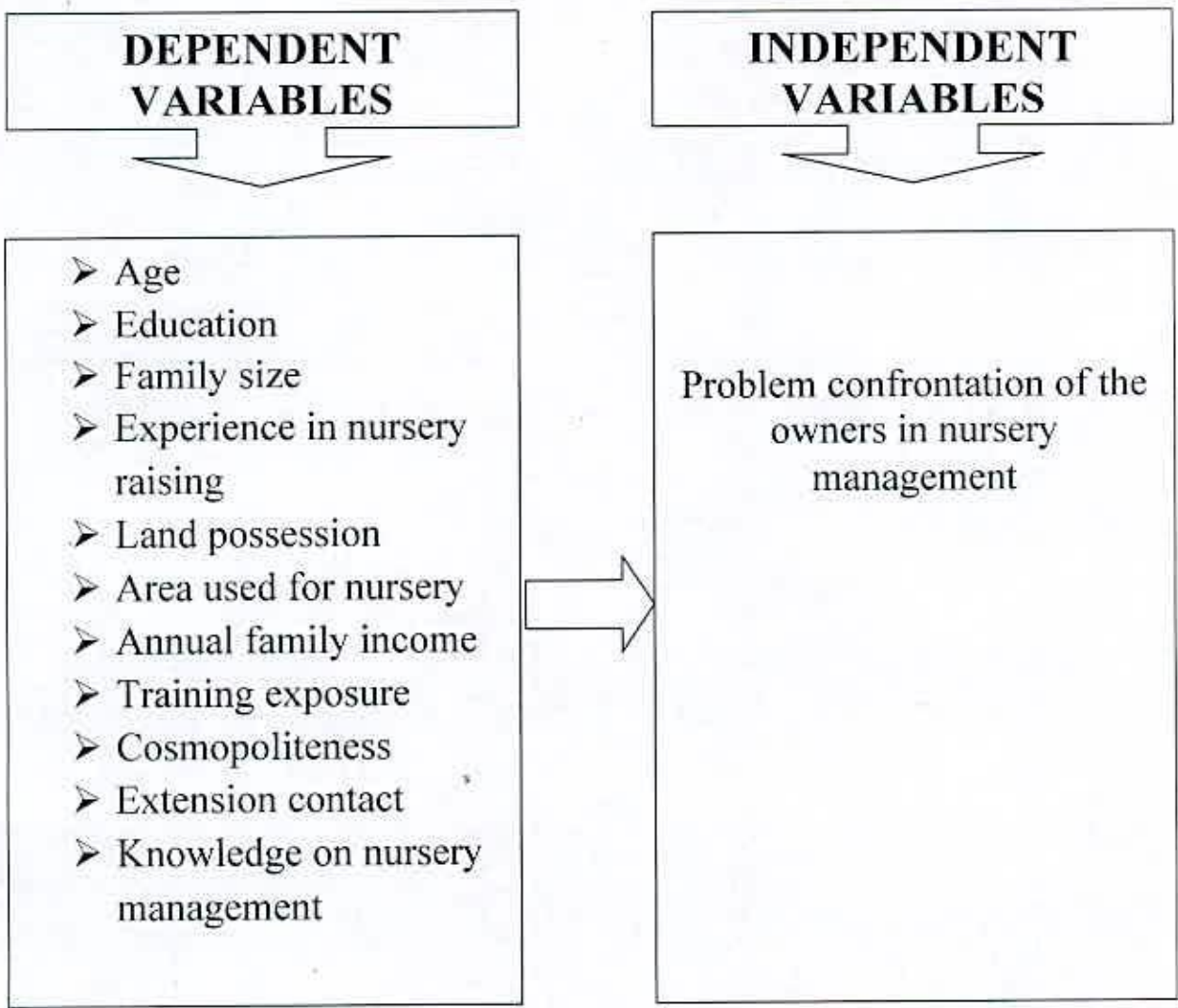


Fig. 2.1 A Conceptual Framework of the Study

Chapter 3

METHODOLOGY

Methods and procedures used in conducting research need very careful consideration. Methodology should be such that enables the researcher to collect valid information and to analyze them properly to arrive at correct decisions. The methods and procedures followed in this research are described in this chapter.

3.1 Locale of the Study

Chandpur District was purposively selected as the locale of the study. There are 8 upazillas in the district. Among those only 1 upazilla where there is no establishment of the nursery because of the area is a charland which is not suitable for the establishment of nursery. As the nursery business is specialized and limited to small number of nursery owners, 7 upazillas of Chandpur District were included as study area. The map of Chandpur district showing the study area is presented in Figure 3.1

3.2 Population and Sample

The people who have nursery, living in Chandpur District were considered as the population for this study. An updated list of 72 nursery owners was prepared by the researcher with the help of Agricultural Extension Department of Chandpur District. All of the 72 nursery owners were selected as sample size. The distribution of population sample and number of respondents has been shown in Table 3.1.



Table 3.1 Distribution of the population and sample

Name of the Upazilla	No. of nursery owners
Chandpur sadar	14
Matlab south	7
Matlab north	13
Hajiganj	4
Shahrasti	10
Kachua	9
Faridganj	15
Total	72

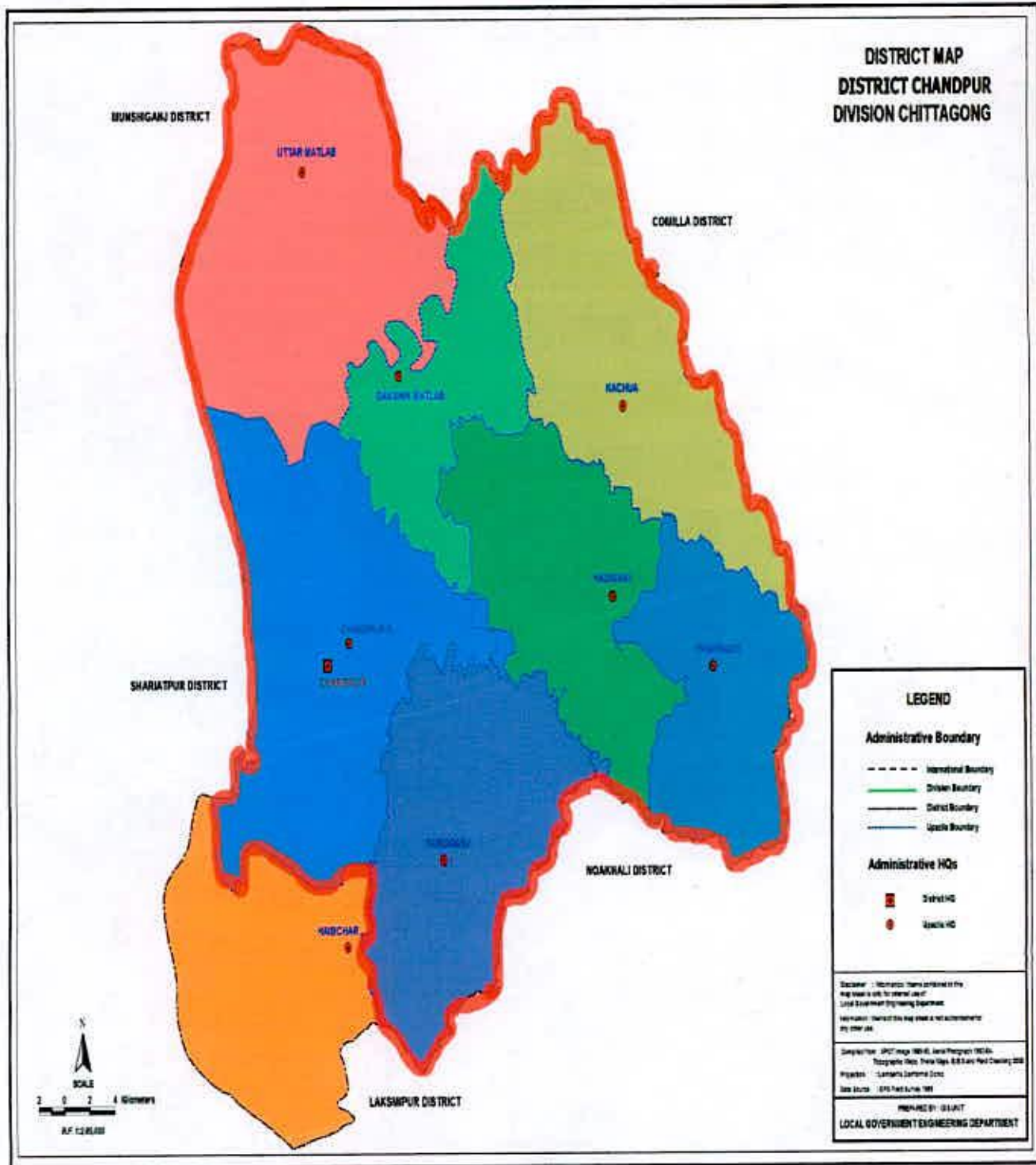


Figure 3.1 A map of Chandpur District Showing the Study Area

3.3 Instrument of Data Collection

A structured interview schedule was used for gathering of relevant data which was made on the basis of the objectives of the study, the nature of problems and the characteristics of the respondents. Both open and closed formed questions were inserted in the interview schedule. Some scales were used in designing the schedule to determine the problems confrontation of the owners in nursery management. A pretest of the schedule was done with the 10 nursery owners of the study area. On the basis of pretest results necessary corrections, additions and alterations were done before final printing of the schedule. Data were collected by the researcher himself during the period of 15 September to 15 October, 2012.

3.4 Data Collecting Procedure

Data were collected through personal interviewing by the researcher himself. The researcher made all possible efforts to establish rapport with the respondent so that they could feel ease and comfort to response the questions in the schedule. Necessary steps were taken to explain the purpose of the study to the respondents and their answers were recorded sincerely. If any respondent felt difficulty in understanding any question, care was taken to help him getting understood. The researcher did not face any serious problem in data collection. The data collection took 30 days from 15 September to 15 October, 2012.

The collected data were complied, tabulated and analyzed. Qualitative data were converted into quantitative form by means of suitable scoring whenever needed.

3.5. Measurement of Independent Variables

3.5.1 Age

The age of a respondent was measured by counting the period of time from his/her birth to the time of interview on the basis of response of the respondent and was expressed in terms of years. A score of one (1) was assigned for each year of his/her age.

3.5.2 Education

The level of education of a respondent was measured by the years of schooling. A score of one (1) was given for each year of schooling i.e. 10 years for S.S.C., 12 years for H.S.C. and so on. A score of zero (0) was given to those who were not able to read and write and score of 0.5 for the respondents who can sign only.

3.5.3 Family size

The family size was calculated by the total number of members in the family of a respondent. The family members included the respondent himself/ herself, spouse, children and other dependents. The total number of family members was considered as the family size score of a respondent.

3.5.4 Experience in nursery raising

Experience in nursery raising was measured on the basis of years the respondent involved in nursery raising. Score one (1) is assigned for each year of experience.

3.5.5 Land possession

The land possession of a respondent was measured by the land area possessed by him. Land possession was calculated by the following formula:

$$\text{Land possession} = A_1 + A_2 + \frac{1}{2}(A_3 + A_4) + A_5$$

A_1 = Own homestead land with kitchen garden and pond

A_2 = Own land under own cultivation

A_3 = Own land given to others on share cropping

A_4 = Land taken from others on share cropping

A_5 = Land taken from others on lease

The respondent gave information about their land possession in local unit and finally it was converted into hectare.

3.5.6 Area used for nursery

The area which was used as nursery was measured in terms of decimal.

3.5.7 Annual family income

Annual family income of a respondent was measured by calculating the total yearly earning of the respondent plus the other members of his or her family. It was expressed in Thousand Taka.

3.5.8 Extension contact

Extension contact referred to the exposure or contact of the respondent with 14 selected information sources such as 6 individual, 3 group and 5 mass contact media. The respondents were asked to answer 4 alternative nature of contact, namely, regularly, often, occasionally and not at all contact. Logical frequencies were considered for each of the alternative responses as followed 3, 2, 1, and 0. Thus the possible score of extension contact could range from 0 to 42, where 0 indicated no extension contact and 42 indicated very high extension contact. The following scoring system was used for computing the extension contact score of the respondents:

Type	Communication Media	Nature of contact			
		Regularly (3)	Often (2)	Occasionally (1)	Not at all (0)
Individual contact	Model nursery owner	>3 times/month	2-3 times/month	1 time/month	0 time/month
	Input traders	>3 times/month	2-3 times/month	1 time/month	0 time/month
	Skilled nursery workers	>3 times/month	3 times/month	1 time/month	0 time/month
	Forest Dept. nursery trainer	>1 times/month	1 time/month	1 time/3 months	0 time/6 months
	NGO nursery specialist	>1 times/month	1 time/month	1 time/3 months	0 time/6 months
	Ag. ex. Officer (Upazilla)	>1 times/month	1 times/month	1 times/3months	1 time/6 months
Group contact	Demonstrations	2 or more times/year	1 time/year	1 time/3years	0 time/6 years
	Group discussion	>3 times/6 months	2-3 times/6months	1 time/6 months	0 time/6 months
	Agril. Tour	2 or more times/year	1time/year	1 time/3 years	0 time/6 years
Mass contact	Farm Radio talk	>3 times/week	2-3 times/week	1 time/week	0 time/week
	TV programs: Mati o Manush/Ridoye Mati o Manush	>3 times/month	2-3 times/month	1 times/month	0 time /month
	Ag. Fair	1 time/year	1 time/2 years	1 time/3 years	0 time/4 years
	Tree fair	1 time/year	1 time/2 years	1 time/3 years	0 time/4 years
	Poster/Leaflet/Booklet / Ad / News paper	>3 times/month	2-3 times/month	1 times/month	0 time /month

3.5.9 Training exposure

Training exposure was determined by the total number of days a respondent received training in his/her entire life on nursery from different organizations.

3.5.10 Cosmopolitaness

Cosmopolitaness refers to the degree to which a respondent's external orientation to his/her own social system. It was measured by the nature of visit made by the respondent to 7 selected places or organizations. The following scoring system was used for computing the cosmopolitaness score of the respondents:

Place/organization of visit	Nature of visit			
	Regularly (3)	Often (2)	Occasionally(1)	Not at all (0)
Different Nurseries in your Upazilla	>3 times/month	2-3 times/month	1 times/month	0 time/month
Nursery fair at national level	1time/year	1 times/2years	1 time/3year	0 time/ ryear
Nursery fair at District level	1time/year	1 times/2years	1 time/3year	0 time/ year
Horticultural center of DAE	>6 times/year	4-6 times/year	1-3 times/year	0 time/year
Forest Dept. training center	>6 times/year	4-6 times/year	1-3 times/year	0 time/year
Nursery association	>6 times/year	4-6 times/year	1-3 times/year	0 time/year
Input-supply organization	>3 times/month	2-3 times/month	1 times/month	0 time/month

The scores obtained from visit to each 7 categories of places were added together to obtain cosmopolitaness score of a respondent. Thus, the cosmopolitaness score could range from 0 to 21.

3.5.11 Knowledge on nursery management

To determine the knowledge on nursery management of the respondents, 20 questions were selected from the different aspect of nursery management after a thorough consultation with the relevant experts. Score two (2) was assigned for correct answer of each question. Partial score was given for partially correct answer. For correct response to all 20 questions a respondent could get a total score of 40, while for the wrong responses to all questions he could get a score of zero (0). Thus the knowledge on nursery management score could range from 0 to 40, where 0 indicating very low and 40 indicating high knowledge on nursery management.



3.6 Measurement of Dependent Variable

Problem confrontation of the owners in nursery management was the dependent variable of this study. For measuring problem confrontation in nursery management of the owners, problems were selected after consultation with the relevant experts, researchers and other available sources. The nature of responses of the respondents to each of 22 problems were categorized in high problem, medium problem, low problem and no problem at all and the scores were assigned as 3, 2, 1 and 0 respectively. Finally, problem confrontation in nursery management score of the respondents was determined by adding all the scores of all responses to 22 problems of that respondent. Thus the possible score of problem confrontation in nursery management could range from 0 to 66, where 0 indicating no problem and 66 indicating very high problem confrontation in nursery management.

3.7 Comparative Problem Confrontation

For having a clear understanding of the comparative problem confrontation of the owners in each of the 22 problems in nursery management, comparative problem confrontation score was determined by using Problem Confrontation Index (PCI) and it was computed by the following formula:

$$\text{Problem Confrontation Index (PCI)} = (P_h \times 3) + (P_m \times 2) + (P_l \times 1) + (P_n \times 0)$$

Where,

P_h = Number of respondents confronted the problem as high

P_m = Number of respondents confronted the problem as medium

P_l = Number of respondents confronted the problem as low

P_n = Number of respondents confronted the problem as not at all

The Problem Confrontation Index for any one of the selected problems could range from 0 to 216, where 0 indicating no problem confrontation and 216 indicating highest problem confrontation. After obtaining the PCI for each of the 22 problems, a rank order was prepared.

3.8 Statement of Hypothesis

A set of hypotheses was formulated for empirical testing. The following null hypothesis was formulated to test the relationships of 11 independent variables with problem confrontation of the owners in nursery management:

“There is no relationship between the problem confrontation of the owners in nursery management and each of the independent variables of the study.”

3.9 Data Processing and Analysis

3.9.1 Compilation of data

After completion of field survey, data from all the interview schedules were coded, compiled, tabulated and analyzed in accordance with the objectives of the study. In this process, all responses in the interview schedule were given numerical coded values. Local units were converted into standard units and qualitative data were converted into quantitative data by assigning suitable scores whenever necessary. The responses of the questions in the interview schedule were transferred to a master sheet to facilitate tabulation.

3.9.2 Categorization of data

For describing the different characteristics and their problem confrontation, the respondents were classified into several categories. These categories were developed by considering the nature of distribution of data, general understanding prevailing in the social system and possible observed scoring system. The procedure for categorization of data in respect of different variable is elaborately being discussed while describing those variables in chapter 4.

3.9.3 Statistical technique

The analysis was performed using SPSS (Statistical Package for Social Sciences) computer package. Descriptive analysis such as range, number, percentage, mean, standard deviation and rank order were used whenever possible. Pearson's Product Moment Co-efficient of Correlation (r) was used in the order to explore the relationship between the concerned variables. Throughout the study, at least five percent (0.05) level of probability was used as basis of rejecting a null hypothesis.

Chapter 4

RESULTS AND DISCUSSIONS

The purpose of this chapter was to describe the findings of the present study. The study investigated problem confrontation of the owners in nursery management. In accordance with the objectives of the study, presentation of the findings has been made in this chapter in the following three sections:

Section 1: Problem Confrontation of the Owners in Nursery Management

Section 2: Selected Characteristics of the Nursery Owners

Section 3: Relationship between the Selected Characteristics of the Nursery Owners and Their Problems Confrontation in Nursery Management

4.1 Problem Confrontation of the Owners in Nursery Management

Problem confrontation of the owners in nursery management was the main focus of this study. The observed scores of problem confrontation in nursery management ranged from 13 to 45 against the possible scores being 0 to 66. The average score was 23.95 with a standard deviation of 5.39. On the basis of problem confrontation in nursery management, the owners are classified into 3 categories as shown in Table 4.1

Table 4.1 Classification of the owners according to their problem confrontation in nursery management

Categories according to problem confrontation in nursery management	Nursery owners		Mean	Standard deviation
	Number	Percent		
Low problem (0-18)	3	4	23.95	5.39
Medium problem (19-29)	60	83		
High problem (above 29)	9	13		
Total	72	100		

Data presented in the table 4.1 indicate that the highest proportion (83%) of the owners had medium problem confrontation as compared to 4% having low problem and 13% high problem confrontation in nursery management.

Nursery management is a combination of complex activities. Most of the nursery owners are unskilled and untrained in accomplishment of such complex activities. Therefore, reasonably all the respondents had experience of problem confrontation in nursery management. An overwhelming majority (96%) experienced medium to high problem confrontation. To make the nursery business profitable and standard, the identified problems should be solved immediately.

4.1.1 Comparative problem confrontation in nursery management among 22 problems

For having better understanding regarding comparative problem confrontation among 22 problems in nursery management, problem confrontation index (PCI) of each of 22 selected problems was computed. The formula for determining PCI has been shown in Chapter 3. The computed PCI of the 22 problem ranged from 2 to 204 which were arranged in rank order according to their PCI as shown in Table 4.2

Table 4.2 Rank order of 22 selected problems as confrontation of the owners in nursery management

Problems	Extent of problem confrontation				PCI	Rank order
	High (3)	Medium (2)	Low (1)	Not at all (0)		
Lack of credit facilities	62	9	0	1	204	1
Non-cooperative marketing	54	14	2	2	192	2
Lack of suitable land	57	7	1	7	186	3
Lack of skilled workers	34	32	1	5	167	4
Low price of seedlings/saplings	28	37	4	3	162	5
Insects	27	37	6	2	161	6
Insufficient supply of quality seeds/seedlings	18	41	6	7	142	7
High salary of the workers	15	35	12	10	127	8
Inadequate improved mother trees	19	22	6	25	107	9
Scarcity of organic manure	5	8	15	44	46	10
Diseases	4	9	13	46	43	11
Flood	2	11	9	50	37	12
Advertisement	5	6	3	58	30	13
Inefficient use of input by workers	2	5	7	58	23	14
Low work output per day from workers	0	7	8	57	22	15
Raising seedlings/ saplings	2	6	2	62	20	16
Lack of seed collection and storage facilities	3	4	1	64	18	17
Inefficient supervision	2	3	3	64	15	18
Unavailability of inputs	0	4	1	67	9	19
Soil preparation for pot or poly bag	1	0	1	70	4	20
Seed bed preparation	0	1	1	70	3	21
Fertilizer doses	0	1	0	71	2	22

PCI= Problem Confrontation Index

N= 72

Data presented in the table 4.2 indicated that Problem Confrontation Index (PCI) scores ranged from 2 to 204 against the possible range of 0 to 216. According to PCI “Lack of credit facilities” ranked the first followed by “Non-cooperative marketing”, “Lack of suitable land”, “Lack of skilled workers”, “Low price of seedlings/saplings” and “Fertilizer Doses” ranked the last.

The table showed that “Lack of credit facilities” ranked the first. It happens due to most of the respondents are usually poor or lack of sufficient capital. Especially, there is no credit facility from the government or non government organizations for nursery owners. So they need credit to make the business larger and more profitable.

“Non-cooperative marketing” ranked the second, which means that there is no establishment of any nursery cooperative society in the region that can help the nursery owners in various aspects like a) fair pricing of inputs b) advertising command and c) quality control of seedlings and saplings. The respondents faced a great difficulty to market their seedlings/ saplings in fair price due to lack of cooperative marketing and quality control of seedlings and saplings. Moreover, huge supply of poor quality seedlings at low price from different parts of the country like Khulna and Barishal districts made the situation more complex.

“Lack of suitable land” is one of the big problems which ranked the third in nursery management. Nursery establishment needs special sites with some specific requirements such as a) easy accessible land, near to the main road for easy transportation, marketing and advertisement purpose b) flood free high land and c) the site must have superior irrigation and electricity supply facility. Almost all the nursery owners had to set their nurseries on leased basis lands which are near to the main road for these purposes. But they have the risk of evacuation after the period of leasing deeds for three to five years where as it is a long term business.

“Lack of skilled workers” was the fourth big problem in nursery management. This problem is common in almost all sectors where need special skills to run businesses. The government and non government organizations have poor provisions to make effective policy to facilitate training programs for making skilled nursery workers.

“Low price of seedlings/saplings” is the fifth big problem in ranked order. Due to lack of cooperative society, auction market, attractive selling environment for the buyers; most of the time the respondents were bound to sale their seedlings or saplings in low price. Moreover, huge supply of poor quality and low priced seedlings from other parts of the country is another cause of this problem.

4.2 Selected Characteristics of the Nursery Owners

In the present study, 11 characteristics of the nursery owners were selected for investigation. The characteristics are: age, education, family size, experience in nursery raising, land possession, area used for nursery, annual family income, training exposure, cosmopolitaness, extension contact and knowledge on nursery management. The salient features of the different characteristics of the respondents have been presented in Table 4.3 and described below:

Table 4.3 Salient features of the different characteristics of the respondents

S. N.	Characteristics	Scoring method	Possible range	Observed range	Categories	Nursery owners (n=72)		Mean	SD
						No.	%		
1	Age	Actual years	-	19-66	Young (up to 35) Middle aged (36-50) Old (>50)	17 37 18	23.6 51.4 25.0	42.11	13.29
2	Education	Years of schooling	-	0-16	Illiterate (0) Can sign only (0.5) Primary level (1-5) Secondary level(6-10) Higher secondary (11-12) Higher educated (>12)	4 12 18 25 4 9	5.6 16.6 25 34.7 5.6 12.5	6.79	4.62
3	Family Size	No. of members	-	2-15	Small (up to 6) Medium (7-9) Large (> 9)	13 36 23	18.0 50.0 32.0	6.80	2.68
4	Experience in Nursery Raising	Years	-	1-32	Low (up to 10) Medium (11-20) High (> 20)	9 40 23	12.5 55.5 32.0	9.75	7.88
5	Land Possession	Hectare	-	0.05-4.82	Marginal (.05-.2) Small (.21-1.0) Medium (1.1-2.0) Large (>2.1)	9 50 13	12.5 69.5 18.0	0.67	0.70
6	Area Used for Nursery	Decimal	-	4-360	Small area (up to 50) Medium area (51-150) Large area (> 150)	58 9 5	80.5 12.5 7.0	88.61	153.42
7	Annual Family Income	(1000) taka	-	50-1425	Low (up to 200) Medium (200-500) High (> 500)	30 18 24	41.7 25.0 33.3	278.7	264.06
8	Extension Contact	Score	-	12-34	Low (up to 18) Medium (19 to 25) High (> 25)	46 23 3	63.9 32.0 4.1	20.23	4.87
9	Training Exposure	No. of days	-	0-1080	Low (up to 7) Medium (8-20) High (> 20)	52 12 8	72.2 16.7 11.1	38.00	172.70
10	Cosmopolitaness	Score	-	5-15	Low (up to 5) Medium (6-10) High (>10)	1 69 2	1.4 95.8 2.8	6.90	1.96
11	Knowledge on Nursery Management	Score	-	17-40	Low (up to 20) Medium (21-32) High (32-40)	6 53 13	8.4 73.6 18	27.89	5.22



4.2.1 Age

The Age score of the respondent ranged from 19 to 66 years and the average being 42.11 with a standard deviation of 13.29. On the basis of their age, the nursery owners were classified into three categories (Table 4.4).

Table 4.4 Distribution of the nursery owners according to their age

Categories	Respondents		Mean	Standard deviation
	Number	Percent		
Young aged (up to 35 years)	23	31.95	42.11	13.29
Middle aged (36-50 years)	32	44.44		
Old (above 50 years)	17	23.61		
Total	72	100		

Data contained in Table 4.4 reveal that the highest proportion (44.44%) of the nursery owners were middle aged, 31.95% were young aged and 23.61% were in the old aged category. It showed that about three fourths (76.39%) of the owners belonged to the young and middle aged categories. Thus, it can be assumed that young and middle aged respondents were generally more tended to involve in nursery business than the old respondents. The analysis expresses that young and middle aged persons were more dynamic and inclined to new ideas and activities. Nursery business is an innovative, challenging and technology oriented business. This business needs extremely bold decisions, which only young and middle aged people can deal with.

4.2.2 Education

Education score of the respondent ranged from 0 to 16 years of schooling and the average was 6.79 with a standard deviation of 4.62. On the basis of education score, the nursery owners were classified into six categories (Table 4.5).

Table 4.5 Distribution of the nursery owners according to their educational level

Categories	Respondents		Mean	Standard deviation
	Number	Percent		
Illiterate (0)	4	5.55	6.79	4.62
Can sign only (0.5)	12	16.67		
Primary level (1-5)	18	25.00		
Secondary level (6-10)	25	34.73		
Higher secondary (11-12)	4	5.55		
Higher educated (above 12)	9	12.50		
Total	72	100		

Data contained in Table 4.5 reveal that the highest proportion (34.73%) of the nursery owners had secondary level education, while 5.55% illiterate, 16.67% can sign only, 25% had primary education, 34.73% had secondary, 5.55% had higher secondary and 12.5% had higher education. It showed that more than three-fourth (77.73%) of the respondents had education ranged from primary to above secondary. In fact, nursery management needs technical education like agricultural diploma from ATI but no respondent had such education. However, conclusion could be drawn that educated people are likely to be more responsive to the modern facts, ideas, technologies and information. As nursery management needs

some scientific information, techniques and innovativeness; education would be helpful for the respondents.

4.2.3 Family size

Family size of the respondent ranged from 2 to 15 and the average was 6.80 with a standard deviation of 2.69. On the basis of their family size, the nursery owners were classified into three categories (Table 4.6).

Table 4.6 Distribution of the nursery owners according to their family size

Categories	Respondents		Mean	Standard deviation
	Number	Percent		
Small (up to 6)	38	52.78	6.80	2.69
Medium (7-9)	21	29.17		
Large (above 9)	13	18.05		
Total	72	100		

Data contained in Table 4.6 reveal that the highest proportion (52.78%) of the nursery owners had small family size, 29.17% had medium family and 18.05% had large family. From the analysis it was observed that about one half (47.22%) of the respondents had medium to large size family, with family size consisted of 7 to 15. To speak the truth, the nursery owners of these families are over burden and cannot make convenient time to receive training, extension contact, neighbors' nursery contact and so forth.

4.2.4 Experience in nursery raising

Experience in nursery raising of the respondent ranged from 1 to 32 years and the average was 9.75 with a standard deviation of 7.88. On the basis of their experience, the nursery owners were classified into three categories (Table 4.7).

Table 4.7 Distribution of the nursery owners according to their experience in nursery raising

Categories	Respondents		Mean	Standard deviation
	Number	Percent		
Low experience (1-10)	49	68.05	9.75	7.88
Medium experience (11-20)	14	19.45		
High experience (above 20)	9	12.50		
Total	72	100		

The data presented in Table 4.7 reveal that the highest proportion (68.05%) of the nursery owners had low experience, 12.50% had high experience and 19.45% had medium experience. It showed that more than four-fifth (87.50%) of the owners belonged to the low and medium experience categories. Experience has a great effect on problem solving capability; more experienced respondents are likely to be more capable of problem solving in nursery management.

4.2.5 Land possession

Land possession of the respondent ranged from .05 to 4.82 hectare and the average was 0.67 with a standard deviation of 0.70. On the basis of their land possession, the nursery owners were classified into three categories (Table 4.8).

Table 4.8 Distribution of the nursery owners according to their land possession

Categories	Respondents		Mean	Standard deviation
	Number	Percent		
Marginal (.05-.2)	9	12.50	0.67	0.70
Small (.21-1.0)	50	69.45		
Medium (above 1.01-2.0)	11	15.27		
Large (above 2.0)	2	2.78		
Total	72	100		

The data presented in Table 4.8 reveal that the highest proportion (69.45%) of the nursery owners had small land possession, 12.50% had marginal, 15.27% had medium and 2.78% had large land possession. It showed that most (84.72%) of the owners belonged to the small and medium land possession categories. Respondents having more land have more income, so they can invest more in nursery as well as profit more.

4.2.6 Area used for nursery

Area used for nursery of the respondents ranged from 4 to 1200 decimal and the average was 88.61 with a standard deviation of 153.42. On the basis of their area used for nursery, the nursery owners were classified into three categories (Table 4.9).

Table 4.9 Distribution of the nursery owners according to their area used for nursery

Categories	Respondents		Mean	Standard deviation
	Number	Percent		
Small area (up to 50)	39	54.17	88.61	153.42
Medium area (51-150)	24	33.33		
Large area (above 150)	9	12.50		
Total	72	100		

The data presented in Table 4.9 revealed that the highest proportion (54.17%) of the nursery owners had small nursery area, 33.33% had medium and 12.50% had large nursery area. It showed that most (87.50%) of the owners belonged to the small and medium nursery area categories. Respondents having larger nursery area are likely to have least problem in nursery management and get more profit.

4.2.7 Annual family income

Annual family income of the respondents ranged from 50 to 1425 thousand taka and the average was 278.75 with a standard deviation of 264.07. On the basis of their annual family income, the nursery owners were classified into three categories (Table 4.10).

Table 4.10 Distribution of the nursery owners according to their annual family income

Categories	Respondents		Mean	Standard deviation
	Number	Percent		
Low (up to 200)	42	58.33	278.75	264.07
Medium (201-500)	21	29.17		
High (above 500)	9	12.50		
Total	72	100		

The data presented in Table 4.10 revealed that the highest proportion (58.33%) of the nursery owners had low annual income, 29.17% had medium and 12.50% had high annual income. It showed that most (88.50%) of the owners belonged to the low and medium annual income. Respondents having higher annual income can invest more in nursery as well as profit more.

4.2.8 Extension contact

The observed score on extension contact of the respondents ranged from 12 to 34 against the possible range of 0 to 42 and the average was 20.24 with a standard deviation of 4.87. On the basis of their extension contact scores, the nursery owners were classified into three categories (Table 4.11).

Table 4.11 Distribution of the nursery owners according to the extension contact

Categories	Respondents		Mean	Standard deviation
	Number	Percent		
Low (up to 18)	30	41.67	20.24	4.87
Medium (19 to 25)	31	43.05		
High (above 25)	11	15.28		
Total	72	100		

The data presented in Table 4.3 revealed that the highest proportion (43.05%) of the nursery owners had medium extension contact, 41.67% had low and 15.28% had high extension contact. It showed that overwhelming portion (95.83%) of the owners belonged to the low and medium extension contact. People having higher extension contact should have lower problem confrontation in nursery management.

4.2.9 Training exposure

Training exposure on nursery of the respondents ranged from 0 to 1080 days and the average was 38.00 with a standard deviation of 172.70. On the basis of their training exposure, the nursery owners were classified into three categories (Table 4.12).

Table 4.12 Distribution of the nursery owners according to their training exposure

Categories	Respondents		Mean	Standard deviation
	Number	Percent		
No training (0)	46	63.89	38.00	172.70
Low training (up to 7)	14	19.44		
Medium training (8-20)	4	5.56		
High training (above 20)	8	11.11		
Total	72	100		

The data presented in Table 4.12 reveal that the highest proportion (63.89%) of the nursery owners had no training, 19.44% had low, 5.55% had medium and 11.11 had high training. It showed that most (83.33%) of the owners belonged to the no to low training. It can be assumed that respondents having lower training were likely to have higher problem confrontation in nursery management.

4.2.10 Cosmopolitaness

The observed score on cosmopolitaness of the respondents ranged from 5 to 15 against the possible range of 0 to 21 and the average was 6.90 with a standard deviation of 1.96. On the basis of their cosmopolitaness scores, the nursery owners were classified into three categories (Table 4.13).

Table 4.13 Distribution of the nursery owners according to their cosmopolitaness

Categories	Respondents		Mean	Standard deviation
	Number	Percent		
Low (up to 5)	1	1.39	6.90	1.96
Medium (6-10)	66	91.67		
High (above 10)	5	6.94		
Total	72	100		

The data presented in Table 4.13 revealed that the highest proportion (91.67%) of the nursery owners had medium cosmopolitaness, 1.39% had low and 6.94% had high cosmopolitaness. It showed that almost all (98.61%) of the owners belonged to the medium and high cosmopolitaness.



4.2.11 Knowledge on nursery management

The observed score on knowledge on nursery management of the respondents ranged from 17 to 40 against the possible range of 0 to 40 and the average was 27.89 with a standard deviation of 5.22.

Table 4.14 Distribution of the nursery owners according to their knowledge on nursery management

Categories	Respondents		Mean	Standard deviation
	Number	Percent		
Low (up to 20)	6	8.34	27.89	5.22
Medium (21-32)	53	73.61		
High (32-40)	13	18.05		
Total	72	100		

The data presented in Table 4.14 revealed that the highest proportion (73.61%) of the nursery owners had medium knowledge on nursery management, 8.34% had low and 18.05% had high knowledge on nursery management. It showed that most (91.66%) of the owners belonged to the medium and high knowledge on nursery management category. Respondents having higher knowledge on nursery management are likely to identify and solve problems more effectively and efficiently.

4.3 Relationship between the Selected Characteristics of the Respondents and Their Problem Confrontation in Nursery Management

The purpose of this section is to examine the relationship of 11 selected characteristics of the nursery owners with their problem confrontation in nursery management. The characteristics included: age, education, family size, experience in nursery raising, land possession, area used for nursery, annual family income, extension contact, training exposure, cosmopolitaness, and knowledge on nursery management. Each of the characteristics constituted the independent variables while problem confrontation in nursery management was dependent variable. To explore the relationship between the selected characteristics of the nursery owners and their problems confrontation in nursery management, Pearson's product moment co-efficient of correlation (r) was used. Five percent level of probability was used as the basis for rejection of a null hypothesis. The computed values of ' r ' were compared with relevant tabulated values for 70 degrees of freedom at the designated level of probability in order to determine whether the relationships between the concerned variables were significant or not.

The summary of the results of the correlation analysis has been presented in Table 4.4 showing the relationship between 11 characteristics of the nursery owners and their problem confrontation in nursery management.

Table 4.15 Pearson's product moment co-efficient of correlation showing relationship between dependent and independent variables (N=72)

Dependent variable	Independent variables	Computed value of "r"	Tabulated value of "r"	
			At 5% level	At 1% level
Problem confrontation in nursery management	Age	0.242*	0.232	0.303
	Education	0.286*		
	Family size	-0.072		
	Experience in nursery raising	0.094		
	Land possession	-0.167		
	Area used for nursery	-0.265*		
	Annual family income	-0.119		
	Extension contact	0.035		
	Training exposure	-0.014		
	Cosmopolitaness	-0.072		
	Knowledge on nursery management	0.112		

** Significant at 0.01 level of probability with 70 df.

* Significant at 0.05 level of probability with 70 df.

4.3.1 Relationship between age of the nursery owners and their problem confrontation in nursery management

Relationship between age of the nursery owners and their problem confrontation in nursery management was determined by testing the null hypothesis: "There is no relationship between age of the nursery owners and their problem confrontation in nursery management".

The calculated value of the coefficient of correlation between the concerned variables was found to be 0.242 as shown in table 4.4. The following observations were made regarding the relationship between the two variables under consideration.

- a. The observed value between the concerned variables "r" (0.242) was found to be greater than the tabulated value ($r = 0.232$) with 70 degrees of freedom at 0.05 level of probability.*
- b. The null hypothesis could be rejected.*
- c. The relationship between the concerned variables was statistically significant at 0.05 level of probability.*
- d. The relationship showed a positive trend between the concerned variables.*

Based on the above findings, the researcher concluded that age of the owners had significant positive relationship with their problem confrontation in nursery management. This meant that age of the owners was an important factor in problem confrontation in nursery management and the older nursery owners were likely to have more problem confrontation and solve their problem more effectively in nursery management.

4.3.2 Relationship between education of the nursery owners and their problem confrontation in nursery management

Relationship between education of the nursery owners and their problem confrontation in nursery management was determined by testing the null hypothesis: "There is no relationship between education of the nursery owners and their problem confrontation in nursery management".

The calculated value of the coefficient of correlation between the concerned variables was found to be 0.286 as shown in table 4.4. The following observations were made regarding the relationship between the two variables under consideration.

- a. The observed value between the concerned variables "r" (0.286) was found to be greater than the tabulated value ($r = 0.232$) with 70 degrees of freedom at 0.05 level of probability.*
- b. The null hypothesis could be rejected.*
- c. The relationship between the concerned variables was statistically significant at 0.05 level of probability.*
- d. The relationship showed a positive trend between the concerned variables.*

Based on the above findings, the researcher concluded that education of the owners had significant positive relationship with their problem confrontation in nursery management. This meant that education of the owners was an important factor in problem confrontation in nursery management and the educated nursery owners were likely to have more problem confrontation and have more problem solving capability in nursery management.

4.3.3 Relationship between family size of the nursery owners and their problem confrontation in nursery management

Relationship between family size of the nursery owners and their problem confrontation in nursery management was determined by testing the null hypothesis: "There is no relationship between family size of the nursery owners and their problem confrontation in nursery management".

The calculated value of the coefficient of correlation between the concerned variables was found to be -0.072 as shown in table 4.4. The following observations were made regarding the relationship between the two variables under consideration.

- a. The observed value between the concerned variables "r" (-0.072) was found to be smaller than the tabulated value ($r = 0.232$) with 70 degrees of freedom at 0.05 level of probability.*
- b. The null hypothesis could not be rejected.*
- c. The relationship between the concerned variables was statistically non significant at 0.05 level of probability.*
- d. The relationship showed a negative trend between the concerned variables.*

Based on the above findings, the researcher concluded that family size of the owners had non-significant negative relationship with their problem confrontation in nursery management. This meant that family size of the owners was not an important factor in problem confrontation in nursery management but with the increase of family size of the respondent's problem confrontation in nursery management was decreased.

4.3.4 Relationship between experience in nursery raising of the nursery owners and their problem confrontation in nursery management

Relationship between experience in nursery raising of the nursery owners and their problem confrontation in nursery management was determined by testing the null hypothesis: "There is no relationship between experience in nursery raising of the nursery owners and their problem confrontation in nursery management".

The calculated value of the coefficient of correlation between the concerned variables was found to be 0.094 as shown in table 4.4. The following observations were made regarding the relationship between the two variables under consideration.

- a. The observed value between the concerned variables "r" (0.094) was found to be smaller than the tabulated value ($r = 0.232$) with 70 degrees of freedom at 0.05 level of probability.*
- b. The null hypothesis could not be rejected.*
- c. The relationship between the concerned variables was statistically non significant at 0.05 level of probability.*
- d. The relationship showed a positive trend between the concerned variables.*

Based on the above findings, the researcher concluded that experience in nursery raising of the owners had significant no relationship with their problem confrontation in nursery management. This meant that experience in nursery raising of the owners was not an important factor in problem confrontation in nursery management.

4.3.5 Relationship between land possession of the nursery owners and their problem confrontation in nursery management

Relationship between land possession of the nursery owners and their problem confrontation in nursery management was determined by testing the null hypothesis: "There is no relationship between land possession of the nursery owners and their problem confrontation in nursery management".

The calculated value of the coefficient of correlation between the concerned variables was found to be -0.167 as shown in table 4.4. The following observations were made regarding the relationship between the two variables under consideration.

- a. The observed value between the concerned variables "r" (-0.167) was found to be smaller than the tabulated value ($r = 0.232$) with 70 degrees of freedom at 0.05 level of probability.*
- b. The null hypothesis could not be rejected.*
- c. The relationship between the concerned variables was statistically non significant at 0.05 level of probability.*
- d. The relationship showed a negative trend between the concerned variables.*

Based on the above findings, the researcher concluded that land possession of the owners had no significant relationship with their problem confrontation in nursery management. This meant that land possession of the owners was not an important factor in problem confrontation in nursery management but with the increase of land possession of the respondent's problem confrontation in nursery management was also decreased.

4.3.6 Relationship between area used for nursery of the nursery owners and their problem confrontation in nursery management

Relationship between age of the nursery owners and their problem confrontation in nursery management was determined by testing the null hypothesis: "There is no relationship between area used for nursery of the nursery owners and their problem confrontation in nursery management".

The calculated value of the coefficient of correlation between the concerned variables was found to be -0.265 as shown in table 4.4. The following observations were made regarding the relationship between the two variables under consideration.

- a. The observed value between the concerned variables "r" (-0.265) was found to be greater than the tabulated value ($r = 0.232$) with 70 degrees of freedom at 0.05 level of probability.*
- b. The null hypothesis could be rejected.*
- c. The relationship between the concerned variables was statistically significant at 0.05 level of probability.*
- d. The relationship showed a negative trend between the concerned variables.*

Based on the above findings, the researcher concluded that area used for nursery of the owners had significant negative relationship with their problem confrontation in nursery management. This meant that area used for nursery of the owners was an important factor in problem confrontation in nursery management and the nursery owners having higher area used for nursery were likely to have least problem confrontation in nursery management.

4.3.7 Relationship between annual family income of the nursery owners and their problem confrontation in nursery management

Relationship between annual family income of the nursery owners and their problem confrontation in nursery management was determined by testing the null hypothesis: “There is no relationship between annual family income of the nursery owners and their problem confrontation in nursery management”.

The calculated value of the coefficient of correlation between the concerned variables was found to be -0.119 as shown in table 4.4. The following observations were made regarding the relationship between the two variables under consideration.

- a. The observed value between the concerned variables “r” (-0.119) was found to be smaller than the tabulated value ($r = 0.232$) with 70 degrees of freedom at 0.05 level of probability.*
- b. The null hypothesis could not be rejected.*
- c. The relationship between the concerned variables was statistically non significant at 0.05 level of probability.*
- d. The relationship showed a negative trend between the concerned variables.*

Based on the above findings, the researcher concluded that annual family income of the owners had no significant relationship with their problem confrontation in nursery management. This meant that annual family income of the owners was not an important factor in problem confrontation in nursery management but with the increase of annual family income of the respondent’s problem confrontation in nursery management was also decreased.

4.3.8 Relationship between extension contact of the nursery owners and their problem confrontation in nursery management

Relationship between extension contact of the nursery owners and their problem confrontation in nursery management was determined by testing the null hypothesis: "There is no relationship between extension contact of the nursery owners and their problem confrontation in nursery management".

The calculated value of the coefficient of correlation between the concerned variables was found to be 0.035 as shown in table 4.4. The following observations were made regarding the relationship between the two variables under consideration.

- a. The observed value between the concerned variables "r" (0.035) was found to be smaller than the tabulated value ($r = 0.232$) with 70 degrees of freedom at 0.05 level of probability.*
- b. The null hypothesis could not be rejected.*
- c. The relationship between the concerned variables was statistically non significant at 0.05 level of probability.*
- d. The relationship showed a positive trend between the concerned variables.*

Based on the above findings, the researcher concluded that extension contact of the owners had no significant relationship with their problem confrontation in nursery management. This meant that extension contact of the owners was not an important factor in problem confrontation in nursery management.



4.3.9 Relationship between training exposure of the nursery owners and their problem confrontation in nursery management

Relationship between training exposure of the nursery owners and their problem confrontation in nursery management was determined by testing the null hypothesis: "There is no relationship between training exposure of the nursery owners and their problem confrontation in nursery management".

The calculated value of the coefficient of correlation between the concerned variables was found to be -0.014 as shown in table 4.4. The following observations were made regarding the relationship between the two variables under consideration.

- a. The observed value between the concerned variables "r" (-0.014) was found to be smaller than the tabulated value ($r = 0.232$) with 70 degrees of freedom at 0.05 level of probability.*
- b. The null hypothesis could not be rejected.*
- c. The relationship between the concerned variables was statistically non significant at 0.05 level of probability.*
- d. The relationship showed a negative trend between the concerned variables.*

Based on the above findings, the researcher concluded that training exposure of the owners had no significant relationship with their problem confrontation in nursery management. This meant that training exposure of the owners was not an important factor in problem confrontation in nursery management but with the increase of training exposure of the respondent's problem confrontation in nursery management was also decreased.

4.3.10 Relationship between cosmopolitanism of the nursery owners and their problem confrontation in nursery management

Relationship between cosmopolitanism of the nursery owners and their problem confrontation in nursery management was determined by testing the null hypothesis: "There is no relationship between cosmopolitanism of the nursery owners and their problem confrontation in nursery management".

The calculated value of the coefficient of correlation between the concerned variables was found to be -0.072 as shown in table 4.4. The following observations were made regarding the relationship between the two variables under consideration.

- a. The observed value between the concerned variables "r" (-0.072) was found to be smaller than the tabulated value ($r = 0.232$) with 70 degrees of freedom at 0.05 level of probability.*
- b. The null hypothesis could not be rejected.*
- c. The relationship between the concerned variables was statistically non significant at 0.05 level of probability.*
- d. The relationship showed a negative trend between the concerned variables.*

Based on the above findings, the researcher concluded that cosmopolitanism of the owners had no significant relationship with their problem confrontation in nursery management. This meant that cosmopolitanism of the owners was not an important factor in problem confrontation in nursery management but with the increase of cosmopolitanism of the respondent's problem confrontation in nursery management was also decreased.

4.3.11 Relationship between knowledge on nursery management of the nursery owners and their problem confrontation in nursery management

Relationship between knowledge on nursery management of the nursery owners and their problem confrontation in nursery management was determined by testing the null hypothesis: "There is no relationship between knowledge on nursery management of the nursery owners and their problem confrontation in nursery management".

The calculated value of the coefficient of correlation between the concerned variables was found to be 0.112 as shown in table 4.4. The following observations were made regarding the relationship between the two variables under consideration.

- a. The observed value between the concerned variables "r" (0.112) was found to be smaller than the tabulated value ($r = 0.232$) with 70 degrees of freedom at 0.05 level of probability.*
- b. The null hypothesis could not be rejected.*
- c. The relationship between the concerned variables was statistically non significant at 0.05 level of probability.*
- d. The relationship showed a positive trend between the concerned variables.*

Based on the above findings, the researcher concluded that knowledge on nursery management of the owners had no significant relationship with their problem confrontation in nursery management. This meant that knowledge on nursery management of the owners was not an important factor in problem confrontation in nursery management.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of Findings

5.1.1 Problem confrontation of the owners in nursery management

The observed problem confrontation scores of the owners in nursery management ranged from 13 to 45 against the possible range of 0 to 66. The mean score was 23.96 and the standard deviation was 5.39. The highest proportion (83%) of the owners had medium problem confrontation while the 4% and 13% had low and high problem confrontation respectively. This meant that the majority (96%) of the nursery owners had medium to high problem confrontation in nursery management.

The problem Confrontation Index (PCI) ranged from 2 to 204 against 0 to 216. According to PCI, Lack of credit facility ranked the first followed by Non-cooperative marketing, Lack of suitable land, Lack of skilled workers, Low price of seedlings/saplings, Insects problem, Insufficient supply of quality seeds/seedlings, High salary of the workers, Inadequate improved mother trees, Scarcity of organic manure, Diseases problem, Flood problem, Advertisement problem, Inefficient use of input by workers, Low work output per day from workers, Problems in Raising seedlings/ saplings, Lack of seed collection and storage facilities, Inefficient supervision, Unavailability of inputs, Problems in Soil preparation for pot or poly bag, Problems in Seed bed preparation and Problems in Fertilizer doses.

5.1.2 Selected characteristics of the nursery owners

Finding in respect of the 11 selected characteristics of the nursery owners are summarized below:

Age: Age of the nursery owners ranged from 19 to 66 years with the average of 42.11. The most (44.44%) of the respondent nursery owners were middle aged category followed by 31.95 % were young and 23.61% were old aged category.

Education: Education of the respondent owners ranged from 0 to 16 years of schooling with the average of 6.79. The highest (34.73%) had secondary level education followed by 5.55% were illiterate, 16.67% can sign only, 25% had primary education, 5.55% had higher secondary and 12.5% had higher educated level.

Family size: Family size of the respondent nursery owners ranged from 2 to 15 with the average of 6.80. The most (52.78%) of the respondent had medium family size followed by 18.05% had small and 29.17% had large family.

Experience in nursery raising: Experience in nursery raising of the respondent nursery owners ranged from 1 to 32 with the average of 9.75. The most (68.05%) of the respondent had low experience followed by 19.45% had medium and 12.50% had high experience.

Land possession: Land possession of the respondent nursery owners ranged from 0.05 to 4.82 with the average of 0.67. The most (69.45%) of the respondent had small land possession followed by 12.50% had marginal and 15.27% had medium and 2.78% had large land possession.

Area used for nursery: Area used for nursery of the respondent nursery owners ranged from 4 to 1200 with the average of 88.61. The most (54.17%) of the respondent had small area followed by 33.33% had medium and 12.50% had large area used for nursery.

Annual family income: Annual family income for nursery of the respondent nursery owners ranged from 50 to 1425 with the average of 278.75. The most (58.33%) of the respondent had low annual income followed by 29.17% had medium and 12.50% had high annual family income.

Extension contact: Extension contact of the respondent nursery owners ranged from 12 to 34 with the average of 20.24. The most (43.05%) of the respondent had medium extension contact followed by 41.67% had low and 15.28% had high extension contact.

Training exposure: Training exposure of the respondent nursery owners ranged from 0 to 1080 with the average of 38. The most (63.89%) of the respondent had no training exposure followed by 19.44% had low training, 5.56% had medium and 11.11% had high training exposure.

Cosmopolitaness: Cosmopolitaness of the respondent nursery owners ranged from 5 to 15 with the average of 6.90. The most (91.67%) of the respondent had medium cosmopolitaness followed by 1.39% had low and 6.94% had high cosmopolitaness.

Knowledge on nursery management: Knowledge on nursery management of the respondent nursery owners ranged from 17 to 40 with the average of 27.89. The most (73.61%) of the respondent had medium knowledge followed by 8.34% had low and 18.05% had high knowledge on nursery management.

Relationship between the selected characteristics of the nursery owners with their problem confrontation in nursery management

The Pearson product moment correlation (r) showed that age, education, area used for nursery had significant relationship with their problem confrontation. However, family size, experience in nursery raising, land possession, annual family income, extension contact, training exposure, cosmopolitaness and



knowledge on nursery management had no significant relationship with their problem confrontation.

5.2 Conclusions

Conclusions were drawn on the basis of the findings of this study and their logical interpretation of the findings and other relevant facts were stated below:

1. Majority (96%) of the nursery owners had medium to high problem confrontation in nursery management. So it may be concluded that there is need to take proper action to mitigate the problems in nursery management.
2. The study exposed that about three fourths (76.39%) of the owners belonged to the young and middle aged categories. Thus, it can be concluded that young and middle aged respondents were generally more tended to involve in nursery business than the old respondents. The findings express that young and middle aged persons were more dynamic and inclined to new ideas and activities. Nursery business is an innovative, challenging and technology oriented business.
3. The study exposed that more than three-fourth (77.73%) of the respondents had education ranged from primary to above secondary. Conclusion could be drawn that educated people are likely to be more responsive to the modern facts, ideas, technologies and information. As nursery management needs some scientific information, techniques and innovativeness; education would be helpful for the respondents.
4. The study revealed that about one half (47.22%) of the respondents had medium to large size family, with family size consisted of 7 to 15 members. To speak the truth, the nursery owners of these families are over burden and cannot make convenient time to receive training, extension contact, neighbors' nursery contact and so forth.

5. The study exposed that more than four-fifth (87.50%) of the owners belonged to the low and medium experience categories. Experience has a great effect on problem solving capability; more experienced respondents are likely to be more capable of problem solving in nursery management.
6. The study revealed that most (84.72%) of the owners belonged to the small and medium land possession categories. Respondents having more land have more income, so they can invest more in nursery as well as profit more.
7. The study revealed that most (87.50%) of the owners belonged to the small and medium nursery area categories. Respondents having larger nursery area are likely to have least problem in nursery management and get more profit.
8. The study exposed that most (88.50%) of the owners belonged to the low and medium annual income. Respondents having higher annual income can invest more in nursery as well as profit more.
9. The study revealed that overwhelming portion (95.83%) of the owners belonged to the low and medium extension contact. People having higher extension contact should have lower problem confrontation in nursery management.
10. The study exposed that most (83.33%) of the owners belonged to the no to low training. It can be concluded that respondents having lower training were likely to have higher problem confrontation in nursery management.
11. The study exposed that almost all (98.61%) of the owners belonged to the medium and high cosmopolitaness. Higher cosmopolitaness broadens the view of a person and makes a person to think wisely when problem arise.
12. The study revealed that most (91.66%) of the owners belonged to the medium and high knowledge on nursery management category. So it may be concluded that respondents having higher knowledge on nursery management are likely to identify and solve problems more effectively and efficiently.

5.3 Recommendations

Recommendations based on the findings and conclusions of the study are presented below:

1. Proper guidance and necessary help should be given the small and medium nursery owners so that they can overcome their problems which are related to financial inability. So, it can be recommended that the concern authorities should take responsibility to increase the availability of credit from the commercial banks or NGOs.
2. To reduce the problem of getting low price of seedling or sapling, it can be recommended that nursery associations should take initiative for the establishment of cooperative marketing or auction market; they can also ask help from DAE or other social welfare departments for this purpose.
3. DAE and land department of the government should arrange suitable land area for the marginal and small nursery owners for their nursery so that they can continue their business without fear of evacuation from leased basis land.
4. Extension contact helps the people to become more conscious and more dynamic in confronting the problems and taking necessary solutions. It is therefore recommended that when the nursery owners would be organized by the DAE or NGOs or any other organizations careful consideration should be given for technical assistance or other important requisites, training as a regular phenomenon of the nursery owners and workers to teach skills and use of improved technologies for problem solving and better income earning.
5. The agriculture officers, SAAO should take extra care to the nursery owners for better cultivation, using better technology, education, marketing procedure and in acquire information so that nursery owners could increase their production and sell their products at a higher price.

5.4 Recommendations for further study

The present study investigated problem confrontation of the owners in nursery management. The following future studies should be undertaken covering more dimensions in related matters.

1. The study was conducted on the population of nursery owners of seven upazillas of Chandpur district. Similar studies may be undertaken in other parts of the country to verify the findings of the present study.
2. The study investigated the relationship of the nursery owners 11 characteristics with their problem confrontation in nursery management. Further research should be undertaken for exploring the relationship of other characteristics of the owners with their problem confrontation in nursery management.
3. The study investigated 22 problems in nursery management. But it is required to investigate other problems in nursery management.
4. Research should be undertaken that the effectiveness of agricultural extension service and other related organizations in helping nursery owners to solve their problem confrontation in nursery management.
5. Review of literature indicates that there is no research on nursery management. The present study was restricted to problem confrontation of the owners in nursery management. Further study should be undertaken on the various problems of the nursery owners which affect their nursery business.

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Appendix I. English version of the interview schedule
Department of Agricultural Extension and Information System
Sher-e-Bangla Agricultural University
Dhaka – 1207

An interview schedule for the study on
“Problem confrontation of the owners in nursery management”

Serial No.:-----

Name of the respondent: -----

Father's/Husband's name: -----

Village: -----

Union: -----

Upazilla: -----

District: -----

Please answer the following questions:

1. Age: How old are you? ----- Years

2. Education: Please state your educational level

A) Can't read and write (-----)

B) Can sign only (-----)

C) I have passed class (-----)

3. Family size: How many members are there in your family including you? -----members

4. Experience in nursery raising: How many years are you involved in nursery raising? ----years

5. Land possession:

Please indicate your land area under your possession

Sl. No.	Type of land possession	Land area	
		Local unit	Hectare
A	Own homestead land with kitchen garden & pond		
B	Own land under own cultivation		
C	Own land given to others on share cropping		
D	Land taken from others on share cropping		
E	Land taken from others on lease		
Total			

6. Mention the area you used for nursery ----- decimal.

7. Annual family income: Please indicate your annual (including other earning members of your family) in the last year from different sources.

Sources of income	Monthly income (taka)	Yearly income (taka)
Nursery		
Crops		
Business		
Service		
Live stock		
Poultry		
Fisheries		
Others (if any)		
Total		

8. Extension contact: Please indicate the extent of your contact with the following media

Type	Communication Media	Nature of contact			
		Regularly (3)	Often (2)	Occasionally (1)	Not at all (0)
Individual contact	Model nursery owner	>3 times/month	2-3 times/month	1 time/month	0 time/Month
	Input traders	>3 times/month	2-3 times/month	1 time/month	0 time/Month
	Skilled nursery workers	>3 times/month	3 times/month	1 time/month	0 time/Month
	Forest Dept. nursery trainer	>1 times/month	1 time/month	1 time/3 months	0 time/6 months
	NGO nursery specialist	>1 times/month	1 time/month	1 time/3 months	0 time/6 months
	Ag. ex. Officer (Upazilla)	>1 times/month	1 times/month	1 times/ 3 months	1 time/6 months
Group contact	Demonstrations	2 or more times/year	1 time/year	1 time/3years	0 time/6 years
	Group discussion	>3 times/6 months	2-3 times/6months	1 time/6 months	0 time/6 months
	Agril. Tour	2 or more times/year	1time/year	1 time/3 years	0 time/6 years
Mass contact	Farm Radio talk	>3 times/week	2-3 times/week	1 time/week	0 time/week
	TV programs: Mati o Manush/Ridoye Mati o Manush	>3 times/month	2-3 times/month	1 times/month	0 time /month
	Ag. Fair	1 time/year	1 time/2 years	1 time/3 years	0 time/4 years
	Tree fair	1 time/year	1 time/2 years	1 time/3 years	0 time/4 years
	Poster/ Leaflet/ Booklet/ Ad/News paper	>3 times/month	2-3 times/month	1 times/month	0 time /month

9. Training exposure: Have you received any training on nursery? Yes ----- No-----

Sl. No.	Name of the training course	Sponsoring organization	No of training course	Duration (days)	Total days
1.					
2.					
3.					
4.					

10. Cosmopolitaness: Please indicate the extent of your visit to the following places or organizations for promotion of nursery business.

Place of visit	Nature of visit			
	Regularly (3)	Often (2)	Occasionally (1)	Not at all (0)
Different Nurseries in your Upazilla	>3 times/month	2-3 times/month	1 times/month	0 time/month
Nursery fair at national level	1time/year	1 times/2years	1 time/3year	0 time/ ryear
Nursery fair at District level	1time/year	1 times/2years	1 time/3year	0 time/ year
Horticultural center of DAE	>6 times/year	4-6 times/year	1-3 times/year	0 time/year
Forest Dept. training center	>6 times/year	4-6 times/year	1-3 times/year	0 time/year
Nursery association	>6 times/year	4-6 times/year	1-3 times/year	0 time/year
Input-supply organization	>3 times/month	2-3 times/month	1 times/month	0 time/month

11. Knowledge on nursery management: Please answer the following questions:

Sl. No.	Question	Full score	Obtain score
1.	What are the qualities of good seeds?	2	
2.	Mention the name of four propagation methods	2	
3.	How do you prepare Veneer or Cleft grafting?	2	
4.	What is the season of Air Layering?	2	
5.	How do you prepare Air Layering in Guava plants?	2	
6.	Mention two harmful insects of nursery plants	2	
7.	Which insect is harmful for coconut seedling and how do you manage it?	2	
8.	Mention two major diseases of nursery plants	2	
9.	How do you prevent Damping Off of seedling?	2	
10.	Mention the name of two chemical insecticides	2	
11.	Mention the name of two fungicides	2	
12.	Mention two root initiating hormone	2	
13.	Mention the name of five seasonal flowers	2	
14.	Mention the name of five medicinal plants	2	
15.	Mention the name of five ornamental plants	2	
16.	How do you prepare compost?	2	
17.	What tools do you need in nursery works?	2	
18.	How do you prepare soil for pot or poly bag?	2	
19.	How do you collect and sow seeds of Neem?	2	
20.	How do you harden sapling before marketing?	2	
Total		40	

12. Problem confrontation of the farmers in nursery management

Please mention the extent of problem confronted by you in nursery management

Sl. No.	Problems		Extent of problem confrontation			
			High (3)	Medium (2)	Low (1)	Not at all (0)
1.	Technical problems	Raising seedlings/ saplings				
		Seed bed preparation				
		Soil preparation for pot or poly bag				
		Fertilizer doses				
2.	Management problems	Insufficient supply of quality seeds/seedlings				
		Inadequate improved mother trees				
		Lack of credit facilities				
		Scarcity of organic manure				
		Lack of suitable land				
		Lack of seed collection and storage facilities				
		Unavailability of inputs				
		Inefficient supervision				
3.	Marketing problems	Low price of seedlings/ saplings				
		Non-cooperative marketing				
		Advertisement				
4.	Labor problems	Lack of skilled workers				
		High salary of the workers				
		Inefficient use of input by workers				
		Low work output per day from workers				
5.	Natural problems	Insects				
		Diseases				
		Flood				

Thank you for your kind co-operation in data collection.



Signature of interviewer

Date: _____

Appendix II. Correlation Matrix

Characters	A	B	C	D	E	F	G	H	I	J	K	L
A	1.00											
B	0.035	1.00										
C	0.169	-0.206	1.00									
D	0.314**	0.071	-0.048	1.00								
E	-0.10	0.147	0.188	0.318**	1.00							
F	-0.111	-0.049	0.151	0.314**	0.871**	1.00						
G	0.088	0.078	0.234*	0.200	0.635**	0.541**	1.00					
H	0.046	0.370**	0.108	0.229	0.411**	0.313**	0.317**	1.00				
I	0.148	0.007	-0.056	0.114	0.046	0.089	0.066	0.125	1.00			
J	0.084	0.292*	0.114	0.259*	0.473**	0.450**	0.127	0.560**	0.116	1.00		
K	0.175	0.427**	0.088	0.315**	0.473**	0.392**	0.302*	0.609**	0.245*	0.356**	1.00	
L	0.242*	0.286*	-0.072	0.094	-0.167	-0.265*	-0.119	0.035	-0.014	-0.072	0.112	1.00

A: Age
 B: Education
 C: Family size
 D: Experience in nursery raising

E: Land possession
 F: Area used for nursery
 G: Annual family income
 H: Extension contact

I: Training exposure
 J: Cosmopolitaness
 K: Knowledge on nursery management
 L: Problem confrontation in nursery management