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Challenges Encountered by Nursery Owners When Producing Seedlings

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ABSTRACT

In order to accomplish these goals, the research set out to identify the most pressing issue that nursery owners confront when it comes to seedling production and to investigate any connections that may exist between the chosen characteristics of nursery owners and these issues. Research took conducted in Dhaka district's Savar Upazilla. From a total of 120 nursery proprietors in Savar Upazilla, which is part of the Dhaka district, 30 were chosen at random utilizing an interview schedule to serve as the study's sample. Twelve issues related to seedling production that nursery entrepreneurs face were chosen. A person's age, education level, nursery area, training exposure, yearly income, marketing facility, capital investment, input availability, and organizational engagement were among the listed variables. The nursery owners' seedling production issues were measured using a scale score, and the 12 issues were compared using a problem faced index (PFI). For the statistical study, the coefficient of Pearson's product moment correlation (r) was used. The majority of nursery proprietors (76.7%) reported medium to high levels of difficulty in seedling production, whereas a small percentage (23.3%) reported minimal difficulty. Negatively significant correlations with the seedling production issue were also shown to be associated with yearly income, marketing facility, capital investment, input availability, organizational engagement, and training exposure. Issues such as "Inadequate space for seedling production," "Inadequate understanding of technical aspects," "Inadequate availability of trained labor," "Infestation of diseases," and "Infestation of insects" topped the Problem Faced Index (PFI).

Keywords: Nursery owners, Savar upazilla, SAU, Problem faced index (PFI), and Seedling production.

INTRODUCTION:

Establishing a forest plantation often makes the most efficient and effective use of plants grown in a nursery, and the most frequent approach for generating planting stock is to grow seedlings in a nursery. What matters most for the plantation's quality is the seed supply and the seedlings' health. Seedlings of wood, fruit, ornamental, and medicinal plants are in high demand throughout the nation. Unfortunately, neither the government nor non-governmental organizations are meeting this need.

a sufficient degree. Additionally, there is a daily rise in the need for various saplings. Plant conservation is greatly impacted by nurseries. There are 85 percent rural residents in Bangladesh, making it an agro-based nation. Nutritional deficiencies mostly affect them. Producing an enormous quantity of fruits and vegetables is necessary to fulfill the nutritional needs of the country's growing population. So, the government

of Bangladesh has prioritized the planting of various fruit trees and medicinal plants around the nation. In

In this context, it is crucial to distribute better fruit and medicinal saplings/seedlings among farmers and other motivated individuals. In order to successfully execute the tree planting and forestation programs throughout the nation, a large number of plant nurseries, including commercial, non-governmental, and government-run facilities, have been set up in various regions. Aside from a few economic studies, little research on plant nursery management or the nursery industry has been carried out (Islam et al., 1998). According to Hossain et al. (2023), academics and policymakers might benefit from detailed information on the plant nursery company in order to enhance the business. Nurseries play a crucial role in making sure that farmers have access to Quality Planting Material (QPM) on a local basis, helping to



multiply QPM, and offering technical support. Owners of nurseries have banded together at the upazila level to establish the Upazila Nursery Malik Samities (UNMS) in an effort to promote trade and commerce. The District Nursery Malik Samities (DNMS) were founded by the UNMS as they increased in size and capacity to organize themselves at the district level. Until they reach maturity, plants in a nursery should not be exposed to harsh conditions. We urge local villagers to start small-scale community nurseries so they can guarantee high-quality seedlings and provide themselves additional chances (money, technology transfer).

Objectives of the Study

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

- To determine the extent of problems faced by the nursery owners in seedling production
- To determine and describe selected characteristics of the nursery owners
- To explore the relationships between the selected characteristics of the nursery owners & their extent of problem faced in seedling production
- To compare the severity among the problems faced by the nursery owners in seedling production.

Assumptions of the Study

"An assumption is the supposition that an apparent fact or principle is true in the light of the available evidence" (Goode, that year). While conducting this study, the researcher had the following assumptions:

- 1) The interviewees who were part of this study's sample were knowledgeable enough to provide appropriate answers to the questions asked.
- 2) The researcher who conducted the interviews was well-versed in the local culture and climate. That is why his data collection from the respondents was completely unbiased.
- 3) The respondents' answers were credible and accurate.
- 4) The data collected from the sample of nursery owners was representative of the whole population in the research region in terms of views and attitudes.
- 5) Other regions of the nation with comparable

personal, socioeconomic, and cultural conditions to the research area may find the results of the study applicable.

Literature

Review

Reviewing previous research that is relevant to the study's primary subject is the goal of this chapter. There are three parts of the literature review that pertain to this topic. The first part of the paper reviews the literature on the challenges farmers have while growing different crops, and the second part reviews the research that has examined the correlation between certain traits and those challenges. The chapter concludes with a discussion of the study's theoretical underpinnings. Unfortunately, there is a dearth of research that addresses the issue that nursery operators have when trying to produce seedlings. Nevertheless, the following is a presentation of research that pertains to farmers' problem-solving in several areas of agriculture: Research on the farm-aged children of the Haor region in Mohangonj upazila was carried out by Ismail in 2001. According to the study, the top six problems are as follows: (i) the youth of the farm do not have access to loans for fishery cultivation; (ii) there are no government programs that support agriculture for the youth of the farm; (iii) there are no loan-giving agencies that can help beginners start farms in 1-10 days; (iv) the general public has trouble with fishing because of government leasing of Jalmohal; (v) there are no government programs that support poultry farms; and (vi) there are no agricultural loans for the youth of the farm. In his research, Uddin (2004) uncovered five factors that impose limitations on

challenges associated with commercial vegetable farming, including but not limited to: seed availability, pest and disease infestation, field management, marketing, and extension efforts. Among these limitations, he highlighted the fact that farmers had serious problems with insect infestations and diseases. There was no statistically significant correlation between the age of the farmers and the limitations they encountered while growing potatoes in the Jhikargacha upazilla of the Jessore district, according to Aziz (2006), who examined the link between respondents' demographics and the problems they encountered. According to Hoque (2006), there is a negative and very significant association between farmers' education and the problems they encounter when trying to use integrated plant nutrient management.



There was a statistically significant negative correlation between the farmers' sugar-cane farming area and the difficulties they had while growing mushrooms, according to Basher (2006). Researchers Van den Ban (2003) discovered a strong correlation between nursery owners' exposure to training and the frequency with which they encountered problems when producing seedlings. There was no statistically significant correlation between the farmers' yearly family income and the difficulty they encountered while implementing integrated plant nutrition management, according to Hoque (2006). According to research by Aalbaek (2001), nursery operators' marketing facilities are negatively correlated with the problems they face while trying to produce seedlings. Research by Hazra (2006) indicated a very substantial negative correlation between nursery operators' capital investment and the difficulties they faced while producing seedlings. We were unable to locate any literature that discussed the connection between the availability of inputs and the issues encountered by nursery owners. Aalbaek (2001) discovered a very substantial negative correlation between the organizational participation of nursery owners and the problems they faced while producing seedlings. The issue that nursery operators have while trying to produce seedlings was the focus of this research. Therefore, the primary objective of the research was to identify the challenges encountered during seedling production. Considering every potential attribute in a single research would be impossible. This led to the need to restrict the following attributes: age, education level, nursery location, training exposure, yearly family income, marketing availability of inputs, facility, capital investment, and organizational involvement.

MATERIALS AND METHODS:

A field survey employing a structured interview schedule was the main strategy employed in this investigation. An important part of every scientific investigation is the approach. Methodology should be carefully considered in order to conduct research in a methodical manner. The ideal situation would allow the researcher to gather trustworthy data for making informed conclusions. The next sections detail the methodologies and procedures used to carry out these investigations. Sample and Population The individuals included in this research were the

nursery proprietors who were engaged in seedling production inside the Savar upazilla. The current researcher, with the assistance of the horticulture wing of DAE, compiled a current list of 120 proprietors of nurseries. Using a random selection procedure, 30 nursery owners were chosen from a pool of 120 farmers. At the same time, we made a backup list of five farmers to call on in the event that the ones we tested were unavailable. An interview schedule was developed with the study's objectives in mind to ensure the collection of appropriate data. On the timetable, you may find both multiple-choice and free-form questions. To counteract the unclear questions, the program also contained straightforward and simple questions. The sample was not included in the pre-test with the three nursery owners from the research region. The results of the pretest informed the necessary adjustments to the interview timeline. Before data collection could begin, the revised and finalized interview schedule was printed. Age, educational attainment, nursery space, training exposure, yearly income, marketing facility, nursery capital investment, input availability, and organizational involvement were the nine characteristics chosen as independent factors in this research. The variable that was dependent in this research was the confronting of problems by the nursery owners. The purpose of this measurement is to determine the extent to which nursery owners tackle management problems, based on problems chosen after consulting with appropriate experts, researchers, and other available sources. Answers to each of the twelve tasks ranged from "severe problem" to "little problem" and "no problem," with a maximum score of 3. Thus, Respondents' issues with nursery management may be rated on a scale from 0 (no problem) to 36 (extremely high), with 36 being the highest possible score.

Data Analysis Techniques

In keeping with the aims of the research, the data were examined. When appropriate, we used scoring techniques to transform qualitative data into quantitative data. Various statistical metrics



were used to characterize the variables, including range, means, standard deviation, number, and percentage distribution. To investigate the connections between the relevant variables, Pearson's Product Moment Correlation Coefficient was used. Any null hypothesis might be rejected at the 5% (0.05) level of probability.

THESE OUTCOME AND COMMENTARY:

The results of the current investigation are to be detailed in this section. The first part of the article discusses the chosen traits of nursery owners, and the second part addresses the challenge that these owners have while trying to produce seedlings. The final segment delves into the relationship between the chosen characteristics of nursery owners and the challenges they encounter while producing seedlings. The relative gravity of the issues encountered by nursery operators during seedling production is addressed in the fourth section.

Selected Details about the nursery proprietors This study relies on nine traits shown by nursery owners. Age, education level, nursery area, training exposure, yearly income, marketing facility, capital investment, input availability, and organizational engagement are some of the criteria.

Age

The respondents' ages varied from 25 to 63 years, with an average of 41.03 and a standard deviation of 9.45. The beneficiaries were grouped into three groups according to their age. Of the nursery owners surveyed, 60% were in their middle years of life, 33.30% were in their youth, and 6.70 % were in their senior years. Respondents' levels of schooling varied from zero to sixteen. Its standard deviation is 8.93 and its average is 8.93

4.08 was the rating. The participants were divided into three groups according to their level of education. According to the statistics, 66.60 percent of the nursery proprietors had a secondary or higher degree, while 30.10 percent had only completed basic school.

Infant room

On average, respondents reported a nursery area of 0.36 hectares, with a standard deviation of 0.24, and a range of 0.068 to 0.96 hectares. There were three groups of responders based on their nursing speciality. According to the data provided, a majority of nursery proprietors had a medium-sized nursery space, with 23.30% having a tiny nursery and 16.70% having a big one. Owners of nurseries reported training exposure scores ranging from 0 to 30 days, with a mean of 10.83 and a standard deviation of 12.25.

Annual income

Responses varied from 100 to 1500 for yearly income. There was a standard deviation of 354.48 and an average annual income score of 435.50 among the respondents. A large majority of farmers (46.6 percent) reported a medium yearly family income, while 36.70 percent reported a low income and 16.70 percent reported a high income. The nursery owners' marketing facilities received scores between 1 and 3, with a mean of 2.40 and a standard deviation of 0.56. The nursery operators were divided into three groups according to their marketing facility. According to the statistics, 53.40 percent of nursery operators had a medium marketing facility, while 23.30% had a high marketing facility and 3.30% had a poor one.

Problems Obstacles encountered by nursery entrepreneurs during

Results for nursery owners' calculated issues in nursery management varied from 11 to 25, with a potential range of 0 to 36. Seventeen points was the average, with a standard deviation of 4.46. Table 1 shows that the nursery owners were divided into three groups according to the scores they received for the challenges they encountered.



Table 1: Distribution of the respondents according to problems faced in nursery management.

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

Data contained in **Table 1** indicates that majority (66.70 percent) of the nursery owners had medium problem while 23.3 percent of the nursery owners had low problem and 10.00 percent had the high problem.

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

Coefficient of correlation was computed in order to explore the relationship between the selected characteristics of the nursery owners and their problems faced in nursery. The selected characteristics constituted the independent variables and problems faced in seedling production by the nursery owners constituted the dependent variable. In order to determine the relationship between nine selected characteristics of the nursery owners viz. age, level of education, nursery area, training exposure, annual income, marketing facility, capital investment, in-put availability and organizational participation and the dependent variable i.e.,

Problems faced by the nursery owners in seedling production. Pearson's Product Moment Correlation was used. Co-efficient of correlation (r) has been used to test the null hypothesis concerning the relationship between the variables.

Five percent level of significance was used as the basis for rejection of any null hypothesis. The summary of the results of the Co-efficient of Correlation indicating the relationship between the selected characteristics of the nursery owners and their problems faced in seedling production are shown in **Table 2**.

Table 2: Co-efficient of Correlation (r) showing relationship between the respondents' selected characteristics and the problems faced in seedling production.

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

NS: Not significant; * Significant at the 0.05 level; ** Significant at the 0.01 level

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

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

nursery owners and their problems faced seedling production".

The computed value of the co-efficient of correlation (r) between the concerned variables was 0.340 as



shown in **Table 2**.

The following observations were made regarding the relationship between the two concerned variables on basis of the Coefficient of correlation (r).

- 1) The relationship showed a negative trend.
- 2) The computed value of ' r ' (0.340) was smaller than the tabulated value ' r ' (0.361) with 28 degrees of freedom at 0.05 levels of probability.
- 3) The concerned null hypothesis would not be rejected.

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

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

Relationship between level of education of the nursery owners and their problems faced in nursery was determined by testing the null hypothesis:

“There is no relationship between level of education of the nursery owners and their problems faced in nursery”.

The computed value of the co-efficient of correlation (r) between the concerned variables was 0.235. The following observations were made regarding the relationship between the two variables on basis of the Coefficient of correlation (r).

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

The findings demonstrate that level of education of the nursery owners had no significant relationship with their problems faced in seedling

production. This indicated that level of education of the nursery owners was not an important factor for their problems faced in seedling production.

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

Relationship between nursery area of the nursery owners and their problems faced in nursery was determined by testing the null hypothesis:

“There is no relationship between nursery area of the nursery owners and their problems faced in seedling production”.

The computed value of the co-efficient of correlation

(r) between the concerned variables was -0.314. The following observations were made regarding the relationship between the two variables on basis of the Coefficient of correlation (r).

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

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

- 1) The following observations were made regarding the relationship between the two variables on basis of the Coefficient of correlation (r).
- 2) The relationship showed a negative trend.
- 3) The computed value of ' r ' (0.609) was larger than the tabulated value ' r ' (0.462) with 28 degrees of freedom at 0.01 levels of probability.
- 4) The concerned null hypothesis would be rejected.

The findings demonstrate that marketing facility of the nursery owners had significant negative



relationship with their problems faced in seedling production. This meant that the nursery owners having more marketing facility faced fewer problems in seedling production.

Relationship between input availability of the nursery owners and their problems faced in seed- ling production

Relationship between input availability of the nursery owners and their problems faced in nursery was determined by testing the null hypothesis:

“There is no relationship between input availability of the nursery owners and their problems faced in seedling production”.

The computed value of the co-efficient of correlation (r) between the concerned variables was -0.687.

The following observations were made regarding the relationship between the two variables on basis of the Coefficient of correlation (r).

- 1) The relationship showed a negative trend.
- 2) The computed value of 'r' (0.687) was larger than the tabulated value `r' (0.462) with 28 de- grees of freedom at 0.01 levels of

probability.

- 3) The concerned of the null hypothesis would be rejected.

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

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

The observed Problem Faced Index of the problems ranged from 21 to 61 against the possible range of 0-90.

Problem Faced Index (PFI) of the selected problems is shown in **Table 3**.

On the basis of PFI, it was observed that “Lack of suitable area for seedling production” ranked first followed by “Lack of technical knowledge”, “Lack of skilled labor”, “Disease infestation”, “Insect in- festation”, “Lack of quality seed”, “Lack of required inputs”, “Irrigation problem”, “Damage by cattle”, “Feeding by cattle”, “Germination problem”, “Seed- ling theft by thieves”.

Table 3: Rank order of the problem faced by the nursery owners in seedling production.

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

CONCLUSION:

The results, logical interpretation, and other pertinent data of the research led to the following conclusions: The most common issues faced by

nursery operators were a shortage of trained workers, inadequate technical expertise, and an unsuitable location for seedling production, which



accounted for more than three quarters of the owners' problems (76.70 percent). There was a negative and statistically significant correlation between the owners' training exposure and the problems they encountered, and 90% of the nursery owners had only moderate or low levels of training. It follows that nursery operators with greater experience in training likely had fewer issues with seedling production. The majority of nursery owners (83.3%) had modest to tiny yearly incomes, and a negative correlation was found between the owners' income and the problems they encountered. So, it's safe to say that the nursery owners with higher yearly incomes had less trouble producing seedlings. Although there was a negative and statistically significant correlation between the marketing facilities of the nursery owners and the problems they encountered, over half of the nursery owners (53.40% to be exact) had medium marketing facilities.

It follows that nursery proprietors with greater marketing space likely had less issues with seedling output. Seventy percent of nursery owners had a little to medium amount of capital invested, and there was a negative correlation between the owners' capital investment and the problems they experienced. Consequently, it's reasonable to assume that seedling production was easier for nursery operators with greater cash. There was a negative and statistically significant correlation between the owners' input availability and the problems they encountered, while 93.3% of nursery owners reported medium to high input availability. Consequently, it is reasonable to assume that nursery proprietors with access to more inputs had less issues with seedling output.

Nearly eighty-three percent of nursery owners rated their organizational engagement as low or medium, and a negative correlation was found between owners' levels of organizational participation and the difficulties they encountered. Consequently, it is reasonable to assume that

proprietors of nurseries with higher levels of organizational involvement had less issues with seedling output.

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