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Constraints Faced by the Nursery Owners in the Production of Saplings

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Abstract

The objective of the study was to ascertain the constraints faced by the nursery owners during the production of saplings in four selected upazilas, namely, Rangpur Sadar, Gongachora, Kaunia and Mithapukur upazilas under Rangpur district. Data were collected from a sample of 94 nursery owners, out of 157, selected by simple random sampling procedure during 20 August to 3 September, 2011. Three aspects of constraints namely input constraints, financial constraints and technical constraints were considered. Majority (77.7%) of the nursery owners faced medium constraints, while 22.3% faced high constraints during the production of saplings. Constraints in respect of technical (44.7%) and financial (42.6%) aspects were the highest compared to input constraints. Among the total 25 constraints under three aspects "unavailability of skilled labour" had the highest mean value (2.32). Farm size, total nursery area, annual income, involvement in nursery, knowledge on nursery and its management, communication exposure, training received and innovativeness had significant negative relationship with the constraints.

***Keywords**: Constraints, production, sapling, nursery.*

Introduction

Growing of seedlings in the nursery is the most common practice for raising planting stock and the use of plants produced from the nursery is generally the most efficient and effective way of establishing a forestry plantation (Gregorio, 2006). Nurseries are temporary homes for seedlings of diverse nature awaiting permanent culture in gardens, homesteads and parks (Mason, 2004).

Ahmed (2003) reported that nursery is one of the most important income based activities in Bangladesh. It is concerned with poverty reduction and socio-economic improvement of poor section of the population. Plant nursery has direct impact in improving the living condition of the poor and it had significant relationship with the socio-economic effect.

The government of Bangladesh has, therefore, given special emphasis for planting different fruit trees and medicinal plants over the country and also encouraged people to integrate medicinal plants with fruit and timber trees with the slogan "plant tree of medicinal value along with fruit and forest species". So, in Bangladesh both the government and people have been more attentive in this regard and plantation activities are increasing day by day. As a result, the demands for seedlings are increasing. Scarcity of planting material is often recognized as the most important constraint for tree planting activities in Bangladesh. Nurseries play a vital role in producing planting materials and making it accessible to people (BSS, 2011).

Currently, more potential growers are willing to establish plant nurseries as a popular income generating activity in Bangladesh's rural areas. The nursery production of tree sapling is a relatively

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new enterprise for rural people. Because of poor management practices, majority of these nursery owners often faces problem of poor seed germination and damping-off seedlings, resulting into low survival and production of saplings. Therefore, for overall development of Bangladesh, constraints that are faced by the nursery owners should be identified properly (Anonymous, 2011).

For smooth sailing of nursery business by the nursery owners, it is necessary to document the constraints being faced by the nursery owners in their production of saplings. In view of above circumstances, it was, therefore, decided to undertake the present study to ascertain the constraints faced by the nursery owners and to find out the relationship between the selected characteristics of the nursery owners and their constraints during production of saplings.

Methodology

Four upazilas of Rangpur district, namely, Rangpur Sadar, Gongachora, Kaunia and Mithapukur upazilas were the locale of the study. Good communication facilities and consequently less expense for conducting the study and researcher's perception about better cooperation from the nursery owners motivated the researcher to select the area for study. A total of 94 nursery owners were selected randomly from a population of 157 nursery owners constituted the sample of this study which was 60 percent of the total population. Pre-testing of the draft interview schedule was conducted earlier to find out gaps and to locate faulty questions and statements. The data were collected during the period from 20 August to 3 September, 2011 using interview schedule. Constraints during production of the saplings were the dependent variable and eleven selected characteristics of the nursery owners were selected as independent variables.

In order to measure extent of the constraints of the nursery owners regarding production of saplings the researcher classified the production constraints into three categories, namely, input, financial and technical constraints. The researcher collected 25 relevant constraint statements through key informant interview and studying the literature relevant with constraints.

Each nursery owner was asked to indicate the extent of difficulty caused by each constraints by using a 4-point rating scale such "high", "medium", "low" and "not at all" and weights were assigned to these response as 3,2,1 and 0 respectively (Karmakar, 2004). Thus, the possible range of overall constraints facing score for 25 constraints could range from 0 to 75, while, 0 indicating no constraints facing and 75 indicating very high constraints facing during the production of saplings.

For having the better understanding regarding nursery owners' constraints in the production of saplings it was necessary to have an idea about the comparative constraints facing in each of the 25 selected constraints. Mean values of the constraints was computed and on the basis of individual mean value a rank order of constraints was prepared.

Findings and Discussion

Selected Characteristics of the Nursery Owners

In this section summary profile of the salient characteristics of the nursery owners have been presented in Table 1. Eleven characteristics of the nursery owner's were selected to find out their relationship with their constraints.

Table 1 Salient features of the selected characteristics of the nursery owners

Characteris-tics	Score range		Categories	Nursery owners N=94		Mean	SD
	Possible	Observed		No.	%		
Age	-	24-58	Young (up to 30) Middle aged (31-50) Old aged (above 50)	46 44 04	48.9 46.8 4.3	33.80	7.619
Education	-	0-16	Illiterate (0) Can sign only (0.5) Primary education (1-5) Secondary education (6-10) Higher education (above10)	3 16 4 37 34	3.2 17 4.3 39.3 36.2	9.05	5.214
Farm size	-	0.144-8.699	Landless (0.02 ha) Marginal (0.02-0.2 ha) Small (0.21-1.0 ha) Medium (1.01-3.0 ha) Large (above 3 ha)	0 7 71 10 6	0 7.4 75.6 10.6 6.4	0.956	1.379
Total nursery area	-	0.003-1.549	Very small (up to 0.034 ha) Small (0.035-0.31 ha) Medium (above 0.31 ha)	1 72 21	1.1 77.7 21.2	0.31	0.276
Annual income	-	70-440	Low (up to 85) Medium (86-160) High (above 160)	16 47 32	16 50 34	157.63	74.328
Involvement in nursery	-	3-18	Low (up to 6) Medium (7-10) High (above 10)	20 42 32	21.3 44.7 34	9.88	3.921
Knowledge on nursery and its management	-	14-34	Low (up to 13) Medium (14-27) High (above 27)	0 60 34	0 63.8 36.2	25.56	4.362
Communica-tion exposure	0-40	3-25	Low (up to 13) Medium (14-27) High (above 27)	51 40 3	54.3 42.5 3.2	11.61	5.071
Training received	-	0-15	Short (up to 2) Medium (3-4) Long (above 4)	52 19 23	55.3 20.2 24.5	2.84	4.073
Credit received	-	0-27	Low credit (upto 2) Medium (3-9) High (above 9)	46 15 33	48.9 14.9 35.2	6.59	8.054
Innovativeness	-	1-22	Low (upto 11) Medium (12-23) High (above 23)	64 30 0	68.1 31.9 0	9.35	4.583

The findings reveal that majority (95.7 percent) of the nursery owners were young to middle aged. The mean education was 9.05 years of schooling. The average farm size was 0.956ha with an average total nursery area of 0.31ha. The highest proportion (50 percent) of the nursery owners had medium annual income. Majority of the nursery owners (63.8 percent) had medium knowledge on nursery and its management and majority (54.3 percent) had low communication exposure. The majority of the nursery owners (55.3 percent) received short training compared to 20.2 percent nursery owners received medium and 24.5 percent received long training. The highest proportion (48.9 percent) of the nursery owners were low credit recipient. The highest proportion of the nursery owners (68.1 percent) had low innovativeness compared to 31.9 percent had medium innovativeness and this is not a good sign in aspects of nursery business.

Overall constraints facing in production of saplings

Overall constraints facing scores for 25 selected constraints of the nursery owners could theoretically range from 0 to 75, where 0 indicating no constraints and 75 indicating high constraints. However, the observed constraints scores of the nursery owners ranged from 30 to 59 with an average of 44.14 and standard deviation is 6.98. Based on their constraints scores, the respondents were classified into three categories as presented in Table 2.

The majority (46.8 percent) of the nursery owners had medium constraints while 39.4 percent had high constraints and only 13.8 percent had low constraints during production of saplings. The mean value (44.14) clearly indicates that the nursery owners faced high constraints during production of saplings. These facts indicate that the desired level of production of saplings would not be possible unless constraints faced by the nursery owners were not solved / minimized by the concerned authority.

Table 2 Categorization of nursery owners according to their overall constraints facing during production of saplings (possible range:0-75; observed range:30-59)

Category of nursery owners	Nursery owner		Mean	Standard deviation
	Num-ber	Per-cent		
Low (Up to 25)	0	0	44.14	6.98
Medium (26-50)	73	77.7		
High (above 50)	21	22.3		
Total	94	100		

Constraints in Different Aspects During Production of Saplings

Table 3 showed that maximum number of nursery owners faced greater constraints in financial and technical constraints in comparison to input constraints. The highest proportion of the nursery owners was in high need for financial and technical support while they had medium need for input support during their production of saplings.

In the present study it was revealed that nursery owners faced wide range of constraints in getting and using credit and technical support for production and marketing of saplings. Maximum nursery owners of the study area had small to medium farm size. So, they need necessary credit with improved technical support for their production and marketing purpose. But unavailability of credit on marginal interest and also inadequate technical support and cooperation from different agencies hampered the production and marketing of the nursery owners.

Table 3 Classification of nursery owners according to their different aspects of production constraints

Different aspects of constraints	Observed range of score	Category	Percent	Mean	SD
Input constraints	10-26	Low (0-10) Medium (11-20) High (>20)	21.3 44.7 34	16.44	3.546
Financial constraints	4-14	Low (0-5) Medium (6-10) High (>10)	21.3 36.1 42.6	9.39	2.033
Technical constraints	11-25	Low (0-10) Medium (11-20) High (>20)	20.2 35.1 44.7	18.31	3.210

Comparison Among the Individual Constraints

The extent of constraints faced by the nursery owners during production of saplings have been presented in Table 4 according to their mean value.

Table 4 Rank order of 25 important constraints as faced by the nursery owners in production of saplings according to their mean value

Name of the constraints	Mean	Rank order
Input constraints		
Unavailability of required land	2.26	2
Unavailability of quality scions and seeds	1.83	11.5
Lack of organic manure as cow dung is used for fuel	1.53	22
Unavailability of skilled labour	2.32	1
Unavailability of specific pesticides in time in the local market	0.36	25
Unavailability of plant growth regulators and hormones in local market	0.66	24
Lack of enough water in dry season	1.23	23
Unavailability of quality mother plants for preparing root stocks	2.11	7
Unavailability of electricity for irrigation	1.95	9
High price of land	2.19	3
Financial constraints		
Unavailability of credit on marginal interest	2.18	4
Lack of adequate cooperation from finance agencies	1.64	20.5
High price of nursery inputs as fertilizers and pesticides	1.79	13.5
High cost of adopting technology	2.15	6
Unavailability special loan or fund for raising nursery	1.64	20.5
Technical constraints		
Lack of knowledge on cutting, grafting and budding	1.83	11.5
Inadequate skill for seeds and soil treatment	1.73	16
Insufficient knowledge about major insects and diseases identification and their managements	2.16	5

Name of the constraints	Mean	Rank order
Lack of training facilities/technical guidance	1.97	8
Non-availability of improved machineries	1.89	10
Insufficient skill for Bonsai preparation	1.69	19
Inadequate technical knowledge on Orchid production	1.78	15
Lack of knowledge on nursery raising/management	1.79	13.5
Inadequate knowledge about export quality produce	1.73	16
Insufficient information about scientific methods	1.73	16

Among 25 individual constraints, unavailability of skilled labour, unavailability of required land, high price of land, unavailability of credit on marginal interest and insufficient knowledge were the major constraints during production of saplings in a nursery. Nursery owners had the willingness to increase their production but they could not so due to these major constraints during the time of their production. All these constraints affect their present production of saplings.

Relationship Between the Selected Characteristics of the Nursery Owners and Their Constraints During Production of Saplings

In order to determine the relationships between selected characteristics of the nursery owners and their constraints during production of saplings coefficients of correlation were computed. The findings presented in Table 5 revealed that farm size, total nursery area, annual income, involvement with nursery, knowledge on nursery and its management, communication exposure, training received and innovativeness had significant negative relationship with the constraints during production of saplings.

It implies that increasing farm size, total nursery area, annual income, involvement in nursery, knowledge on nursery and its management, communication exposure, training received and innovativeness of the nursery owners decreased their constraints during production of saplings. Since there is limited scope to increase farm size, total nursery area, involvement in nursery and annual income of the nursery owners by the external agencies, there is enough scope and opportunities to help them increase their knowledge on nursery and its management, communication exposure, training received and innovativeness. Better knowledge on nursery and its management helps the nursery owners to perform his task efficiently with limited constraints facing. On the other hand, communication exposure, training received and innovativeness might be influencing for minimizing the constraints during production of saplings.

Table 5 Correlations between the selected characteristics of the nursery owners and their constraints of sapling production

Independent variables	Correlation of coefficients (r)
Age	-.048
Education	-.160
Farm size	-.343**
Total nursery area	-.231*
Annual income	-.569**
Involvement in nursery	-.435**
Knowledge on nursery and its management	-.694**
Communication exposure	-.473**
Training received	-.337**
Credit received	.005
Innovativeness	-.325**

*Significant at the 0.05 level of probability (2-tailed) (table value 0.202)

**Significant at the 0.01 level of probability (2-tailed) (table value 0.265)

Nahid (2005) in a study also found negative significant relationships between farm size and total nursery area. Hosen (2005) and Karmakar (2004) reported that annual income, communication exposure and training received of the nursery owners had negative relationship with their problem confrontation. Karim (2009), Alam (2009) and Parvez (2009) revealed significant negative relationship between knowledge and constraints faced by the respondents. Roy (2007) reported that innovativeness of the respondents had negative significant relationship with their constraints during maize cultivation.

Conclusion

For better nursery production larger nursery area would be helpful for minimizing constraints in production of saplings as there was a negative significant relationship between total nursery area and constraints during production of saplings. Again, The findings indicate that knowledge on nursery and its management of the nursery owners had significant negative relationship with their constraints in production of saplings. Knowledge on nursery and its management of the respondents helps them to understand the various complex and complicated issues of nursery management. This leads to the conclusion that due to the above fact the respondents having higher knowledge on nursery and its management faced lower constraints. Nursery owners faced greater constraints in technical constraints and financial constraints in comparison to input constraints and so long the nursery owners would continue to face constraints in these aspects, it would be difficult for them to get the desired output from nursery business. So, the concerned authorities should take proper steps to minimize all those constraints so that the nursery owners will able to harvest desired benefits from the nursery business. Therefore, proper steps should be taken on a priority basis to remove various constraints and special funds, effective communication with nursery owners by concern authorities; need-based training to the nursery owners needs be also allocated for the plant nursery owners so that they can improve their nursery management techniques.

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