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An analytical study on the constraints faced by nursery owners in managing nursery enterprises in Assam

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Abstract
Nursery is a place where plants are propagated, cared for, grown and then sold for use in commercial or residential gardens. Improved quality seedlings are raised under ideal circumstances until they are ready to be planted on a small or large scale. The study was undertaken in three districts of Assam namely, Jorhat, Nagaon and Golaghat which were selected purposively as it is located in close proximity to the only Agricultural University in the state. A sample size of 90 was taken using convenience sampling. 30 nurseries were selected from each district under the study. Primary data for the current study was collected in the month of April- June, 2023. The findings of the present investigation revealed that majority of the respondents (55.56%) belonged to the middle-aged category. Most of the respondents (46.67%) had high level of education. Majority (56.67%) of the respondents belonged to small sized family while 91.1% of the respondents had marginal land holding. Most (62.22%) of the respondents belonged to medium income category. Majority (80%) of the respondents had easy access to labour available on both weekdays and weekends. The study also revealed that most (52.22%) of the respondents had medium level experience in nursery business while majority (71.11%) of the respondents had medium level of training exposure and had attended 1-3 number of trainings conducted by various external sources. Findings revealed that while personal and social problems were comparatively less severe, operational and resource-related issues posed major challenges. Among personal constraints, lack of time due to family burden and limited prior experience were significant. Land utilization difficulties mainly arose from inadequate knowledge of proper space management, whereas marketing problems were largely due to poor understanding of marketing techniques and standard production practices. Transportation challenges such as high costs and limited vehicle availability also affected nursery operations. Institutional issues were marked by lack of coordination and insufficient training opportunities. Although natural calamities like floods and heavy rainfall impacted some nurseries, input-related problems were the most critical. The non-availability of desired inputs at the right time and their high cost ranked as the top constraints based on Weighted Mean Score (WMS). Overall ranking indicated that input-related problems (mean score 2.081) were the most severe, followed by land utilization (1.835) and storage-related problems (1.784). Social and climatic factors were found to be relatively less influential.

Keywords: Nursery enterprise management, constraints analysis, input availability, land utilization, marketing problems, Assam

Introduction
In a nursery, plants are propagated, cared for, grown and then sold for use in commercial or residential gardens. Improved quality seedlings are raised under ideal circumstances until they are ready to be planted on a small or large scale. Retail nurseries and wholesale nurseries both sell saplings that have been propagated in nurseries. All nurseries exist solely to supply young plants or saplings to gardens, farms, agriculture, forestry and for environmental preservation.

A nursery gives its clients all varieties of young plants, including native, imported and exotic plants. A nursery client may be a professional farmer, a home gardener, or even a landscaper. An indoor-outdoor, container-grown and earth-planted plant variety must be catered to by a nursery firm. Nurseries generally have necessary horticultural supplies on hand, including various plant seeds, soil mix, fertilizers, insecticides, garden chemicals, garden tools and the

ability to answer questions about the backyard. The nurseries help with all kinds of queries and purchases in addition to plants.

Without regard to location, nurseries can be established as long as there is enough acreage available for plant growth. Nursery business can be started in a backyard, on an open piece of ground, a greenhouse, or on agricultural land. The knowledge about exactly what kind of plant species to develop must be possessed before starting a firm. Typically, nurseries in metropolitan areas would favor cultivating ornamental trees, blooming plants, decorative plants and veggie plants. Plants are distributed in nurseries in accordance with the identified market need. As majority of the industries are extremely seasonal, prior planning is necessary so that marketing may be done as the season begins.

Depending on the price invested and the availability of this house, the location of the nursery is predetermined. A nursery company is initially started in the backyard if enough space is not available. All that is needed to start a plant nursery is an open space. The nursery's location must be convenient for future growth, close to important towns and cities, transportation and employment opportunities. The location of the nursery site generally has nutrient-rich or medium soil and good water resources. The nursery site should have healthy soil drainage and be pathogen-free.

Objective of the study

To identify the problems faced by the nursery owners in managing their nursery enterprises.

Methodology

The area of the conducted study were the three districts of Assam namely, Jorhat, Golaghat and Nagaon. Nagaon district falls under Middle Assam while Jorhat and Golaghat districts fall under Upper Assam. Nagaon district is located at Latitude-26.3, Longitude-92.6. It sprawls across almost four thousand square kilometres of fertile alluvial plains and thickly forested hills. It shares the boundary with Brahmaputra River along the north, Hojai and Karbi Anglong districts on the south, Golaghat and Karbi Anglong on the east and Karbi Anglong on the west. The district has a population of 18,92,550 with the sex ratio of 962 females per 1000 males. The literacy rate of the district stands at 71.04%. Presently there are two subdivisions namely, Nagaon and Kaliabor. Golaghat district is located at Latitude-26.5, Longitude-93.9. Golaghat district shares border with Jorhat district to the north, Dimapur district to the south, Sonitpur district to the west,Wokha District to the South. To the west it shares border with Meghalaya state, Nagaland State to the south. The district has a population of 10,66,888 with the sex ratio of 964 females per 1000 males. The literacy rate of the district stands at 77.43 per cent. Presently there are four subdivisions namely, Golaghat, Sarupathar, Bokakhat Town and Merapani. Jorhat district is located at Latitude-26.7, Longitude-94.1. Jorhat District shares border with Sivasagar district to the east, Mokokchung district to the south. It shares border with Nagaland state to the south. The district has a population of 9,24,952 with the sex ratio of 963 females per 1000 males. The literacy rate stands at 78.00%. Presently Jorhat district consists of two subdivisions namely, Jorhat and Titabar.

A multi-stage, purposive cum convenience sampling design was adopted for the present study. Three districts of Assam namely, Jorhat, Nagaon and Golaghat were selected purposively for the study as these districts are in close proximity to the state’s only Agricultural University where the latter has been continuously striving to increase the productivity and income of nursery owners. From each district, two sub-divisions were selected purposively keeping in mind the area cover under nursery production. A total number of 90 nurseries were selected using convenience sampling. 30 nurseries from each district were taken under the study.

A planned study schedule and the personal interview method were used to acquire the data for the investigation. In order to get the most complete and correct responses from the respondents, enough thought and effort was put into the schedule's understanding, logical flow, impartial structure, wording and length. Various suitable statistical methods were used keeping in view the type of data and objectives of the study. The qualitative responses to all the research schedule items were initially coded and quantified using the relevant scoring procedures for each. The sum of each variable's scores against each respondent was computed. These results were then imported to an Excel master table data sheet for statistical analysis.

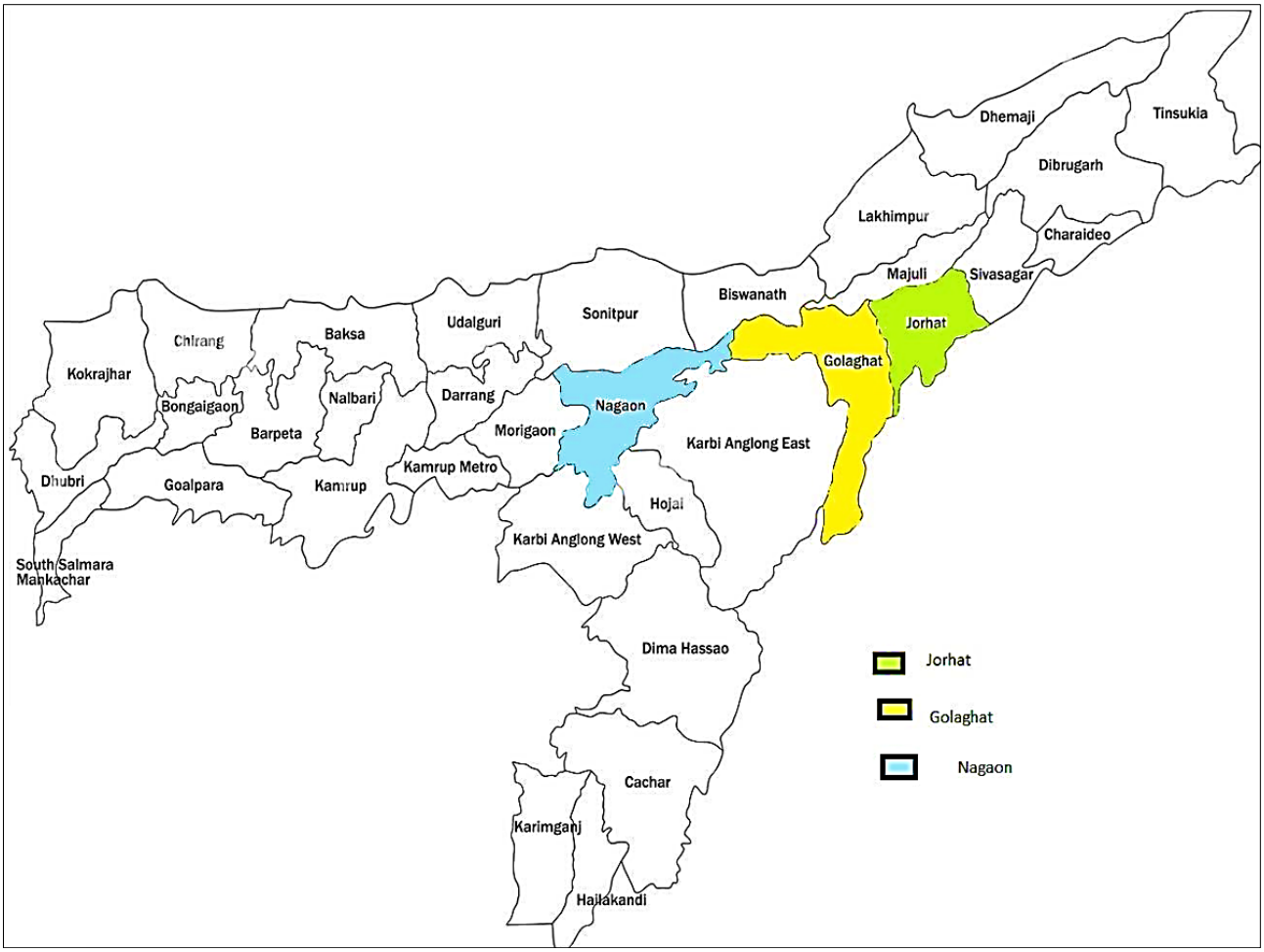

Fig 1: Map of Assam

Fig 2: Map of selected districts- Nagaon, Golaghat and Jorhat

Constraints faced by the nursery owners-

The nature and degree of the various types of problems experienced by nursery owners in operating and managing their business were investigated. A schedule was prepared with various types of problems that could be a restriction for nursery owners in carrying out various operations in the nursery business. The problems were grouped into nine categories, *viz*., personal problems, social problems, land utilization problems, marketing problems, transportation problems, institutional problems, problems related to natural calamities, problems related to inputs and problems related to storage. Frequency of various problems faced by the nursery owners were calculated and tabulated. After calculating the frequency and percentage of various problems faced by the nursery owners, ranking of problems was done with the help of Weighted Mean Score (WMS). The following formula was used to calculate WMS:

$$\text{Weighted Mean Score (WMS)} = \frac{Sum\ of\ product\ of\ frequency\ and\ score\ assigned}{Total\ number\ of\ respondents}$$

Results

Profile characteristics of nursery owners-

1. Age

Data revealed that majority of the respondents (55.55%) belonged to the middle-aged category, followed by young age category (32.22%). Only 12.22 per cent of the respondents belonged to the old age category. The calculated mean (41.6) indicates that the majority of the respondents belonged to the middle age category. Shinde *et al*. (2020) [10] stated that more than one third (41.67%) of Bt cotton growers were found in middle age group of 36-50 years. Thakuria *et al.* (2025) [13-15] reported that majority of the respondents (43.75%) were in the middle-aged group adoption of recommended litchi production technology. Toppo (2005) [17] revealed that majority (71.67 per cent) of farm women belonged to middle age group followed by 26,67 per cent of them with young age and 1.66 per cent with old age group.

Table 1: Distribution of respondents according to their age n=90

Category	Score range	Frequency	Percentage (%)	Mean & SD
Young Aged	18-35 years	29	32.22	$\bar{x}$ = 41.6 σ = 8.02
Middle Aged	36-50 years	50	55.55	
Old Aged	50 and Above	11	12.22	

2. Education

Data revealed that none of the respondent was illiterate while only one respondent (1.11%) fell under 'can read only' category. 10.00, 26.66 and 15.55 per cent of the respondents fell under the categories 'primary passed', 'middle school passed' and 'HSLC passed' respectively. 35.55 per cent of respondents were HS passed while 11.11 per cent of the respondents fell under the category 'Graduate and above'. A similar type of observation was also reported by Thakuria *et al*. (2024) [16] where 41.25 per cent of the respondents had received higher secondary school education. Singh (2007) [11] indicated that majority (58.83 per cent) of the respondents were educated up to secondary and higher secondary level, remaining 25.00 and 16.66 per cent were educated above higher secondary education and primary level of education, respectively.

Table 2: Distribution of respondents according to their education n=90

Category	Score range	Frequency
Illiterate	0	0(0.00)
Can read only	1	1(1.11)
Can read and write/primary passed	2	9(10.00)
Middle school passed	3	24(26.66)
H.S.L.C passed	4	14(15.55)
HS/ PU passed	5	32(35.55)
Graduate and above	6	10(11.11)

*Figures in parentheses indicate percentage

Data categorizes the respondents into different educational categories, ranging from low to high. Data presented in Table 2.1 revealed that the majority of the respondents (46.66%) belonged to the high level of education category, followed by those having medium level of education (42.22%). While 11.11 per cent of the respondents were found to be having a low level of education. The calculated mean (4.08) indicates that the majority of the respondents had a high level of education. Pandeti (2005) [5] found that the majority (21.66%) of them had only completed their primary education.

Table 2.1 Categorization of respondents according to their education n=90

Category	Score range	Frequency	Percentage (%)	Mean & SD
Low	0-2	10	11.11	$\bar{x}$ =4.08 σ = 1.26
Medium	2-4	38	42.22	
High	4-6	42	46.66	

3. Family size

Data presented in table 3 revealed that the majority (56.66%) of the respondents belonged to small sized family followed by medium sized family (34.44%) and large sized family (8.88%). Banerjee and Biradar (2016) [1] found that most of the fodder growers (66.32%) belonged to category of small family size followed by medium family size (32.63%) and only large family size (1.05%). Pradesh (2019) [7] reported that more than two-third (64.17%) of the nursery owners had middle family size followed by small (5.83%) and finally 4.17 per cent of them had very large family size.

Table 4.1.3: Distribution of respondents according to their family size n=90

Categories	Score range	Frequency	Percentage	Mean & SD
Small Sized Family	2-4 members	51	56.66	$\bar{x}$ =4.7 σ = 1.52
Medium Sized Family	5-7 members	31		
Large Sized Family	8 and above	8	8.88	

4. Land Holding: Respondents were categorized based on their land ownership, in accordance with the State Department of Agriculture, Government of Assam's land ownership classification pattern. Data about the magnitude

of the respondents' land holdings is given in Table 4 which revealed that 91.1 per cent of the respondents had marginal land holding. Thakuria *et al.* (2024) [16] reported that majority of the respondents (41.25%) were small farmers followed by 33.75 per cent respondents were marginal farmers. 17.50 per cent of respondents belonged to medium category of farmers. Only 7.50per cent of respondents were semi-medium farmers. Pandey *et al*. (2015) [6] found out that majority (75.56%) of tribal fish farmers had small size (<5 acre) of land holding.

Table 4: Distribution of respondents according to their land holding n=90

Categories	Score range	Frequency	Percentage (%)	Mean & SD
Marginal	Below 1 ha	82	91.11	$\bar{x}$ = 0.68 σ = 0.84
Small	1-2 ha	6	6.66	
Semi-Medium	2-4 ha	0	0.00	
Medium	4-10 ha	2	2.22	
Large	10 ha and above	0	0.00	

5. Annual income

Data presented in table 5 gives the distribution of respondents according to their annual income from the nursery business and other sources.

Table 5: Distribution of respondents according to their annual income n=90

Income categories	Score range	Frequency
Upto 1 lakh	1	4(4.44)
>1 upto 2 lakhs	2	18(20.00)
> 2 upto 4 lakhs	3	42(46.66)
> 4 upto 8 lakhs	4	14(15.55)
> 8 lakhs	5	12(13.33)

*Figures in parentheses indicate percentage

The respondents were further classified into low, mediumand high- income categories according to their annual income. Data presented in table 5.1 revealed that majority (62.22%) of the respondents belonged to medium income category followed by low-income category (24.44%) and high-income category (13.33%). Thakuria *et al.* (2024) [16] revealed that majority of the respondents (66.00%) had medium annual net farm income followed by 23.75 per cent respondents with high annual net farm income. Chandramouli (2005) [3] found that majority of small farmers (42.50%) fell into the semi-medium income category, whereas the majority of medium (47.50%) and large (95.00%) farmers fell into the high-income category.

Table 5.1: Classification of respondents according to their annual income n=90

Category	Score range	Frequency	Percentage (%)	Mean & SD
Low Income	≤ 2	22	24.44	$\bar{x}$ = 3.13
Medium Income	3-4	56	62.22	σ = 1.03
High Income	5	12	13.33	

Labour Availability

Data presented in table 6 revealed that majority (80.00%) of the respondents had easy access to labour available on both weekdays and weekends followed by medium (13.33%) access to labour and low access to labour (6.66%).

Table 6: Distribution of respondents according to labour availability n=90

Category	Score range	Frequency	Percentage (%)	Mean & SD
Available on weekends and weekdays	3	72	80.00	$\bar{x}$ = 2.73 σ = 0.58
Available only on weekdays	2	12	13.33	
Available only on weekends	1	6	6.66	

Experience in Nursery Business

Data presented in table 7 revealed that majority (52.22%) of the respondents had medium level experience in nursery business followed by high level experience in nursery business (26.66). 21.11% of the respondents had low level of experience in nursery business. Sharma *et al*. (2014) [9] found that majority of potato growers (66.67%) had farm experience in the medium range (5 to 9 years), while 21.11 per cent of them had high farm experience (above 9 years)and the remainder 12.22 per cent had low farm experience (below 5 years). Solanki *et al*. (2003) [12] found that just 10.00 per cent of growers had 11 to 15 years of experience, while the majority of growers (37.41%) had between 6 and 10 years, 28.52 per cent had between 15.00 and 25.00and 24.07 per cent had between 1 and 5 years.

Table 7: Distribution of respondents according to experience in nursery business n=90

Category	Score range	Frequency	Percentage	Mean & SD (%)
Low	< 5 years	19	21.11	$\bar{x}$ = 2.05 σ = 0.69
Medium	5-15 years	47	52.22	
High	> 15 years	24	26.66	

Training Exposure

Data presented in table 8 revealed that majority (71.11%) of the respondents had medium level of training exposure and had attended 1-3 number of trainings conducted by various external sources. It was followed by low level of training exposure (24.44%). Only 4.44 per cent of the respondents had high level of training exposure. The mean 1.24 indicates that the respondents had medium level of training exposure. Bhaskar *et al*. (2020) [2] revealed that majority (68.33%) of the nursery owners did not undergo any training and the remaining 31.67 per cent had undergone training. Priyadharshini *et al*. (2016) [8] concluded that majority (85.60%) of the respondents had undergone more than one training. Jahagirdar *et al*. (2017) [4] revealed that 82.50 per cent of total numbers of respondents did not undergo any training.

Table 8: Distribution of respondents according to training exposure n=90

Category	Score range	Frequency	Percentage (%)	Mean & SD
Low	< 1	22	24.44	$\bar{x}$ = 1.24 σ = 1.09
Medium	1-3	64	71.11	
High	> 3	4	4.44	

*Figures in parentheses indicate percentage

Problems faced by the nursery owners

Data presented in Table 9 indicate that nursery owners encounter a wide range of problems, which can be grouped under personal, social, land utilization, marketing, transportation, institutional, natural, input-relatedand storage-related issues.

1. **Personal problems**
   Majority (74.44%) of respondents reported lack of self-confidence as a "not so serious" issue, while 18.89% considered it "serious" and only 6.67% rated it as "very serious." About 51.11% of the nursery owners considered lack of formal education as "not so serious," whereas 28.89% felt it was "serious" and 20% regarded it as "very serious." Lack of time due to family burden was a major issue for many respondents, with 64.44% reporting it as "serious." Similarly, lack of prior experience was perceived as "serious" by 31.11% and "very serious" by 21.11% of the nursery owners. Interestingly, lack of communication with fellow nursery growers was not considered a problem by any respondent as all (100%) marked it as "not so serious."
2. **Social problems**
   Most respondents (80%) reported lack of support from family members as "not so serious," while 15.56% considered it "serious." Likewise, lack of appreciation from other nursery growers was viewed as "not so serious" by a large majority (91.11%).
3. **Land utilization problems**
   Lack of capital was identified as a "serious" issue by 46.67% of nursery owners, while 37.78% viewed it as "not so serious." Lack of knowledge on proper utilization of area under nursery was a concern for many, with 64.44% rating it as "serious."
4. **Marketing problems**
   About 68.89% of nursery owners reported lack of marketing facilities as "not so serious," while 21.11% considered it "serious." On the other hand, lack of knowledge about proper marketing techniques was found to be a "serious" problem by 70% of respondents. Similarly, 58.89% of the respondents viewed lack of knowledge about producing standard quality produce as a "serious" issue.
5. **Transportation problems**
   The poor condition of roads was found to be "not so serious" for 70% of the respondents. However, non-availability of own vehicles was reported by 86.67% as "not so serious." In contrast, high cost of transportation was viewed as "serious" by 60% of the nursery owners. Interestingly, unavailability of transport at the time of need was reported as "not so serious" by all respondents (100%).
6. **Institutional problems-**
   Half of the nursery owners (50%) considered lack of need-based training as a "serious" problem, while 47.78% found it "not so serious." Similarly, lack of coordination was "serious" for 64.44% of the respondents.
7. **Problems related to natural calamities-**
   Drought and hailstorm were perceived as "not so serious" by all respondents (100%), possibly due to local climatic conditions. However, flood and high rainfall were significant challenges; 23.33% and 22.22% of the respondents, respectively, considered them "very serious."
8. **Input-related problems-**
   About 52.22% of the nursery owners indicated that lack of knowledge about the use of pesticides and fertilizers was a "serious" issue. Additionally, high cost of inputs such as seeds, potsand fertilizers was considered "serious" by 76.67% of the respondentsand non-availability of desired inputs at the right time was reported as a "very serious" problem by 34.44%.
9. **Storage-related problems-**
   About 46.67% of respondents mentioned lack of knowledge about proper storage of perishable produce as "not so serious," while 36.67% found it "serious." Lack of proper infrastructure for storage was a "serious" issue for 62.22% of the nursery owners.

Table 9: Problems faced by the nursery owners n=90

Sl. No.	Problems	Not so Serious	Serious	Very Serious
1.	**Personal problems**			
a.	Lack of self confidence	67 (74.44)	17 (18.89)	6 (6.67)
b.	Lack of formal education	46 (51.11)	26 (28.89)	18 (20.00)
c.	Lack of time due to family burden	24 (26.67)	58 (64.44)	9 (10.00)
d.	Lack of prior experience	43 (47.78)	28 (31.11)	19 (21.11)
e.	Lack of communication with fellow nursery growers	90 (100.00)	0 (0.00)	0 (0.00)

f.	Others (Please specify)		-	
2.	**Social problems**			
a.	Lack of support from family members.	72 (80.00)	14 (15.56)	4 (4.44)
b.	Lack of appreciation from other nursery growers	82 (91.11)	7 (7.78)	1 (1.11)
3.	**Land utilization problems**			
a.	Lack of capital	34 (37.78)	42 (46.67)	14 (15.56)
b.	Lack of knowledge on proper utilization of area under nursery	21 (23.33)	58 (64.44)	11 (12.22)
c.	Others (please specify)		-	
4.	**Marketing problems**			
a.	Lack of marketing facilities	62 (68.89)	19 (21.11)	9 (1.00)
b.	Lack of knowledge about proper techniques of marketing	17 (18.89)	63 (70.00)	10 (11.11)
c.	Lack of knowledge about producing standard quality produce:	28 (31.11)	53 (58.89)	9 (1.00)
d.	Others (please specify)		-	
5.	**Transportation problems**			
a.	Poor condition of road:	63 (70.00)	25 (27.78)	2 (2.22)
b.	Non availability of own vehicle	78 (86.67)	12 (13.33)	0 (0.00)
c.	High cost of transportation:	21 (23.33)	54 (60.00)	15 (16.67)
d.	Unavailability of transport at the time of need	90 (100.00)	0 (0.00)	0 (0.00)
6.	**Institutional Problems**			
a.	Lack of need-based training	43 (47.78)	45 (50.00)	5 (5.56)
b.	Lack of coordination	24 (26.67)	58 (64.44)	8 (8.89)
c.	Others (please specify)		-	
7.	**Problems related to natural calamities**			
a.	Drought	90 (100.00)	0 (0.00)	0 (0.00)
b.	Flood	62 (68.89)	7 (7.78)	21 (23.33)
c.	High rainfall	56 (62.22)	14 (15.56)	20 (22.22)
d.	Hailstorm	90 (100.00)	0 (0.00)	0 (0.00)
e.	Others (please specify)		-	
8.	**Problems related to inputs:**			
a.	Lack of knowledge about use of pesticides and fertilizers	26 (28.89)	47 (52.22)	17 (18.89)
b	High cost of inputs like seeds, pots, polybags, fertilizers, pesticides	9 (1.00)	69 (76.67)	12 (13.33)
c.	Non availability of desired inputs at the right time	3 (3.33)	56 (62.22)	31 (34.44)
9.	**Problems related to storage:**			
a.	Lack of knowledge about proper storage of perishable produce like fresh flowers	42 (46.67)	33 (36.67)	15 (16.67)
b.	Lack of proper infrastructure for storage	23 (25.56)	56 (62.22)	11 (12.22)
c.	Others (please specify)		-	

Ranking of problems faced by the nursery owners using WMS: Based on the weighted mean score (WMS), various problems faced by nursery owners were ranked according to their severity. The analysis (Table 10) revealed that among personal problems, “lack of time due to family burden” ranked first, followed by “lack of prior experience” and “lack of formal education.” Under social problems, “lack of support from family members” was ranked first. In terms of land utilization, “lack of knowledge on proper utilization of nursery area” ranked highest, while among marketing problems, “lack of knowledge about proper marketing techniques” occupied the top position. For transportation, “high cost of transportation” emerged as the most serious issueand under institutional problems, “lack of coordination” ranked first. Considering natural calamities, “high rainfall” was reported as the most severe problem. In the case of input-related issues, “non-availability of desired inputs at the right time” ranked first, followed by “high cost of inputs.” Regarding storage problems, “lack of proper infrastructure” ranked highest.

Table 10: Ranking of problems faced by the nursery owners using WMS (Weighted Mean Score)

S. No	Problems	WMS (Weighted Mean Score)	Rank
1.	**Personal problems**		
a.	Lack of self confidence	1.322222	IV
b.	Lack of formal education	1.688889	III
c.	Lack of time due to family burden	1.855556	I
d.	Lack of prior experience	1.733333	II
e.	Lack of communication with fellow nursery growers	1	V
2.	**Social Problems**		
a.	Lack of support from family members.	1.244444	I
b.	Lack of appreciation from other nursery growers	1.1	II
3.	**Land Utilization Problems**		
a.	Lack of capital	1.777778	II
b.	Lack of knowledge on proper utilization of area under nursery	1.888889	I
4.	**Marketing Problems**		
a.	Lack of marketing facilities	1.411111	III
b.	Lack of knowledge about proper techniques of marketing	1.922222	I
c.	Lack of knowledge about producing standard quality produce:	1.788889	II
5.	**Transportation Problems**		

a.	Poor condition of road:	1.322222	II
b.	Non availability of own vehicle	1.133333	III
c.	High cost of transportation:	1.933333	I
d.	Unavailability of transport at the time of need	1	IV
6.	**Institutional Problems**		
a.	Lack of need-based training	1.644444	II
b.	Lack of coordination	1.822222	I
7.	**Problems related to natural calamities**		
a.	Drought	1	III
b.	Flood	1.544444	II
c.	High rainfall	1.6	I
d.	Hailstorm	1	III
8.	**Problems related to inputs**		
a.	Lack of knowledge about use of pesticides and fertilizers	1.9	III
b.	High cost of inputs like seeds, pots, polybags, fertilizers, pesticides	2.033333	II
c.	Non availability of desired inputs at the right time	2.311111	I
9.	**Problems related to storage**		
a.	Lack of knowledge about proper storage of perishable produce like fresh flowers	1.7	II
b.	Lack of proper infrastructure for storage	1.866667	I

Overall ranking of problems faced by the nursery owners

The overall analysis of the problems faced by nursery owners, based on the weighted mean scores, revealed that input-related problems ranked highest with a mean score of 2.081, indicating that issues such as the high cost and non-availability of essential inputs were the most critical challenges. This was followed by land utilization problems (mean score 1.835), suggesting difficulties in managing and efficiently using the available nursery area. Storage-related problems ranked third (1.784), reflecting inadequate infrastructure and poor storage facilities for perishable produce. Personal and institutional problems were found to be of moderate concern, both sharing a mean score of 1.733 and ranking fourth. Marketing problems (1.707) occupied the fifth position, showing that limited marketing knowledge and facilities still hinder nursery operations. Transportation problems ranked sixth (1.347), followed by problems related to natural calamities (1.286), indicating that climatic challenges like floods and heavy rainfall affected nursery management to some extent. Finally, social problems (mean score 1.172) were ranked the least severe, suggesting that most nursery owners received adequate social and family support.

Table 11: Overall ranking of problems faced by the nursery owners

Problems	Mean Score	Rank
1. Personal problems	1.733	IV
2. Social problems	1.172	VIII
3. Land Utilization problems	1.835	II
4. Marketing problems	1.707	V
5. Transportation problems	1.347	VI
6. Institutional problems	1.733	IV
7. Problems related to natural calamities	1.286	VII
8. Problems related to inputs	2.081	I
9. Problems related to storage	1.784	III

Conclusion

The findings of the present investigation revealed that majority of the respondents (55.56%) belonged to the middle-aged category. Most of the respondents (46.67%) had high level of education. Majority (56.67%) of the respondents belonged to small sized family while 91.1% of the respondents had marginal land holding. Most (62.22%) of the respondents belonged to medium income category. Majority (80%) of the respondents had easy access to labour available on both weekdays and weekends. The study also revealed that most (52.22%) of the respondents had medium level experience in nursery business while majority (71.11%) of the respondents had medium level of training exposure and had attended 1-3 number of trainings conducted by various external sources. Findings revealed that while personal and social problems were comparatively less severe, operational and resource-related issues posed major challenges. Among personal constraints, lack of time due to family burden and limited prior experience were significant. Land utilization difficulties mainly arose from inadequate knowledge of proper space management, whereas marketing problems were largely due to poor understanding of marketing techniques and standard production practices. Transportation challenges such as high costs and limited vehicle availability also affected nursery operations. Institutional issues were marked by lack of coordination and insufficient training opportunities. Although natural calamities like floods and heavy rainfall impacted some nurseries, input-related problems were the most critical. The non-availability of desired inputs at the right time and their high cost ranked as the top constraints based on Weighted Mean Score (WMS). Overall ranking indicated that input-related problems (mean score 2.081) were the most severe, followed by land utilization (1.835) and storage-related problems (1.784). Social and climatic factors were found to be relatively less influential. The findings imply that regular trainings and on-field demonstrations by extension officers could play a crucial role in minimizing these challenges. Through practical demonstrations and need-based capacity-building programs,

extension officers can help nursery growers acquire hands-on knowledge about space management, modern nursery practices, efficient input use and cost-effective marketing techniques. Such interactions would also foster better coordination between nursery operators and institutional agencies, enhance awareness about improved production technologies and build confidence among nursery entrepreneurs. Strengthening extension contact and organizing periodic training-cum-demonstration programs would therefore contribute significantly to overcoming operational and resource-related constraints and improving the overall efficiency and sustainability of nursery enterprises.

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