"Profitability And Constraint Analysis Of Commercial Floriculture Nursery Management In East Godavari District Of Andhra Pradesh"

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Abstract:
The present study is intended to analyse the profitability and contraints of commercial floricultural nurseries in Kadiyam mandal of East Godavari district of Andhra Pradesh during 2011-12. The break-even analysis was used to study the profitability which revealed that break-even output in value per hectare of commercial floricultural nursery was Rs. 15,78,250.04 for category I, Rs. 15,73,923.41 for category II and Rs. 15,76,086.73 for overall sample. The major constraint faced by the floricultural entrepreneurs as revealed by the Kendall's coefficient of concordance (W) test were, the unavailability of sufficient human labour for carrying nursery operations followed by unavailability of continuous supply of electricity, unavailability of suitable soil, insufficient supply of water for irrigation, mortality of plants and lack of adequate transportation facilities.

Key words: commercial floricultural nursery, break-even output, Kendall's coefficient of concordance

1.Introduction

Floriculture is identified by the National Board of Horticulture as promoting thrust area for investment and diversification of horticulture and agriculture activities. A very few studies have been done on the economic aspects of floricultural nursery management. There is every need to know the technical feasibility and profitability of floricultural nursery and also the constraints faced by the floricultural nursery farmers in maintaining the nurseries. The present study is an attempt in this direction, to know the profitability and constraints of commercial floricultural nurseries.

2.Material And Methods

The study was conducted in East Godavari district of Andhra Pradesh. Multi-stage purposive random sampling was followed for the study. Kadiyam Mandal was selected as it has the highest area under floricultural nurseries. The top four villages having the highest area under floriculture nurseries were selected from Kadiyam Mandal for the purpose of the study. The selected villages were Kadiyapulanka, Vemagiri, K.Savaram, Muramanda. Two different size categories were made in the sample respondents based on the mean nursery area i.e., category I having less than one hectare nursery area and category II having nursery area more than one hectare. Form each category 15 nursery enterprise were selected randomly, making the total sample size of 30 floricultural nurseries.
The specific objectives for the study are as under.
- To estimate the profitability of commercial floriculture nursery management
- To identify and analyse the constraints faced by the commercial floricultural entrepreneurs in maintaining the nurseries.

2.1.Break - Even Point

To analyse the profitability of the enterprise break-even point was used. At the break-even point the farmer gets neither loss nor profit. To know the minimum level of turnover of a commercial floricultural nursery break-even point in value terms was calculated. The break-even point was located using the formula.

$$\text{Break-even output} = \frac{\text{Fixed cost}}{1- (\text{Variable cost per unit} / \text{Average price per unit})}$$
(in value terms)

2.2.Constraint Analysis

For analysing the problems faced by the floricultural nursery entrepreneurs in the maintenance of plant nurseries, the floricultural nursery entrepreneurs of the two categories were asked to assign the rank for each of the constraint/problem. Kendall's coefficient of concordance (W) test was used to determine the agreement among the entrepreneurs in ranking the constraints faced by them.

$$W = \frac{12\sum (R_i - \overline{R})^2}{K^2 (N^3 - N)}$$

χ^2 (chi square) value is to be calculated to find the significance of the test.

$$\chi^2 = K (N-1) W \text{ at } (N-1) \text{ d.f.}$$

Where,   K = number of respondents.
         N = number of constraints.
W = Kendall's coefficient of concordance.

3.Results And Discussion

3.1.Break-Even Analysis

Break-even analysis is an important tool to study the profitability of the enterprise. In fact this break-even analysis technique is used with a view to locate the level of output that equals the total revenue and total cost. The results of break-even analysis are presented in the table 1 and depicted in fig.1.

On an average break-even output in value per hectare of commercial floricultural nursery was Rs. 15,78,250.04 for category I, Rs. 15,73,923.41 for category II and Rs. 15,76,086.73 for overall sample.

| Particulars	Category I	Category II	Overall
Fixed cost (Rs.)	10,59,011.15	10,82,248.36	10,70,629.76
Variable cost (Rs.)	7,45,938.17	7,77,003.82	7,61,471.00
Gross income (Rs.)	22,67,312.75	24,87,302.33	23,77,307.54
Total output (No. of plants)	95,926.00	99,546.00	97,736.00
Price per unit (Rs.)	23.64	24.99	24.31
Variable cost per unit (Rs.)	7.78	7.81	7.79
Break-even point (Rs.)	15,78,250.44	15,73,923.41	15,76,086.73

Table 1: Break-Even Analysis
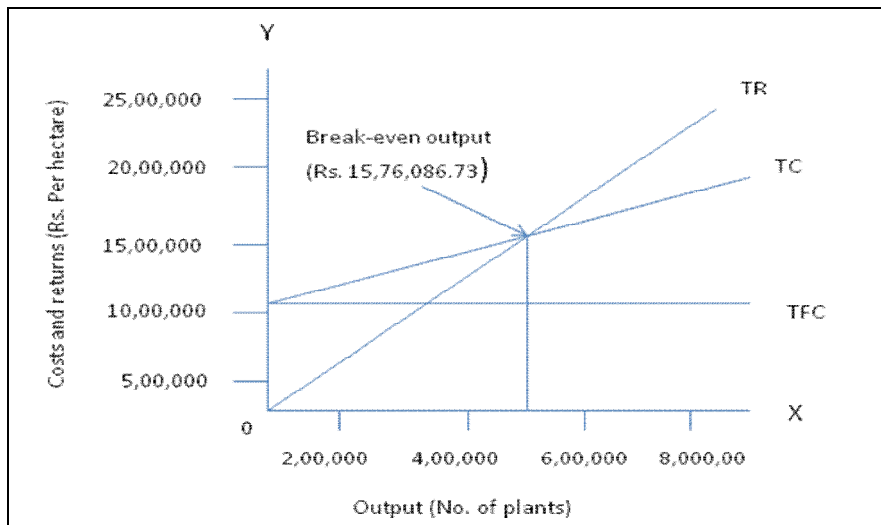
Figure 1: Break-Even Output For Overall Sample

3.2.Constraint Analysis
In the present study an attempt has been made to analyze the problems faced by the floricultural nursery entrepreneurs in maintaining the commercial floricultural nursery business through opinion survey.

For analysing the problems faced by the entrepreneurs in maintenance of floricultural nurseries, the entrepreneurs of two categories were asked to assign the rank for each of the constraint. Kendall's coefficient of concordance (W) test was used to determine the agreement among the floricultural nursery entrepreneurs in ranking the constraints faced by them.

The problems faced by floricultural nursery entrepreneurs were peculiar in comparison to other perennial crops due to the following facts.

- The floricultural nursery needs labor throughout the year unlike other perennial crops
- The floricultural nursery requires irrigations daily all through the year.
- It requires very high investment.

3.3.Analysis Of Problems Faced By Commercial Floricultural Nursery Entrepreneurs
Different constraints were identified in the present study by using a pre tested schedule, analysed and ranked as per the preference of floricultural nursery entrepreneurs.
Constraints identified were:

- Inadequate availability of labor.
- Lack of continuous supply of electricity.
- Inadequate availability of sufficient water for irrigation.
- Inadequate availability of credit facilities.
- Lack of adequate availability of transportation facilities.
- Inadequate availability of suitable soil for filling the polythene bags.
- Marketing problems.
- Problems with pests and diseases.
- Mortality of plants
- Price fluctuations for saplings.

The floricultural nursery entrepreneurs were asked to rank the identified constraints in the order of their preference. Kendall's coefficient of concordance (W) test was applied to verify whether the respondents were in agreement in ranking the constraints. The results are presented in table 2.

$$W = \frac{12 \sum (R_i - \overline{R})^2}{K^2 (N^3 - N)}$$

$\overline{R} = 30+72+180+287+206+93+185+232+157+280 = 165$
$\sum (R_i - \overline{R})^2 = (30 - 165)^2 + (72 - 165)^2 + \ldots\ldots\ldots\ldots\ldots + (280 - 165)^2 = 70050$

$$W = \frac{12 * 70050}{900 \left((10)^3 - 10\right)}$$

The Kendall's coefficients of concordance (W) was calculated by using the ranks assigned by the sample nursery entrepreneurs was:

$$W = 0.943.$$

χ^2 was calculated to test the significance of the test.

χ^2 calculated value = 254.73.

χ^2 table value = 9 df at 1 per cent level of significance = 21.666.

Since the calculated χ^2 value (254.73) was greater than the χ^2 table value (21.666) at one per cent level of significance, it was concluded that the value was significant and that all the floricultural nursery entrepreneurs were in agreement in ranking the constraints.

The constraint study revealed the problems faced by the floricultural nursery entrepreneurs in maintenance of the nursery. The major problems as ranked in order of preference were, inadequate availability of labour followed by lack of continuous supply of electricity, inadequate availability of suitable soil, inadequate availability of water for irrigation, mortality of plants and lack of transportation facilities. The other minor problems were marketing problems, pests and diseases, price fluctuations and lastly the inadequate availability of credit. Bagade *et al.* (2008) studied cut flower production in Ratnagiri district, Maharashtra. The major production constraints observed were availability of credit, labour, suitable planting material and manures and fertilizers. Gowda *et al.* (2006) conducted a study to know constraints in cultivation and marketing of cut flowers in Belgaum District, Karnataka. The major problems in production and marketing of cut flowers were pests and disease attack, high investment cost, exploitation by the middlemen, fluctuation in prices and low price of the flowers.

Constraints identified										
Floricultural Nursery Entrepreneurs	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
1	1	2	4	8	7	3	6	9	5	10
2	1	3	4	10	5	2	7	8	6	9
3	1	2	3	9	7	4	6	8	5	10
4	1	2	4	9	7	3	6	10	5	8
5	1	2	4	10	6	3	5	8	7	9
6	1	2	4	10	7	3	6	8	5	9
7	1	2	5	10	6	4	7	8	3	9
8	1	2	4	9	7	3	6	8	5	10
9	1	4	3	10	7	2	6	8	5	9
10	1	2	4	10	8	3	7	6	5	9
11	1	2	3	9	7	4	6	8	5	10
12	1	2	3	9	7	4	6	8	5	10
13	1	2	4	10	5	3	7	8	6	9
14	1	4	2	10	7	3	6	8	5	9
15	1	2	4	9	7	3	6	8	5	10
16	1	3	2	10	6	4	5	8	7	9
17	1	3	4	10	8	2	6	7	5	9
18	1	2	4	10	6	3	7	8	5	9
19	1	2	4	9	7	3	6	8	5	10
20	1	2	3	9	7	4	6	8	5	10
21	1	2	4	10	8	3	7	6	5	9
22	1	3	4	10	7	2	6	8	5	9

23	1	2	3	9	8	4	6	7	5	10
24	1	2	3	10	7	4	5	8	6	9
25	1	3	4	10	7	2	6	8	5	9
26	1	3	5	9	7	2	6	8	5	10
27	1	4	2	10	7	3	4	8	6	9
28	1	2	3	10	8	4	6	7	5	9
29	1	2	4	9	7	3	8	5	6	10
30	1	2	4	10	6	3	8	7	5	9
Total (Ri)	30	72	180	287	206	93	185	232	157	280

Table 2: Ranks Assigned By The Floricultural Nursery Entrepreneurs
For The Constraints Identified In Floricultural Nursery Business

4.References

1. Bagade, A.D., Talathi, J.M., Naik, V.G and Kamble, S.H. 2008. Production and marketing of cut flower. Agriculture Update. 3 (1/2): 131-136.
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Sl. No.	Cost particulars	Category I	Category II	Overall
A.	**Labour cost**			
1	Land preparation	24,500.00	24,666.65	24,583.33
		(0.97)	(0.95)	(0.96)
2	Bed preparation	13,583.32	13,666.65	13,624.99
		(0.54)	(0.53)	(0.54)
3	Planting	79,000.00	79,166.67	79,083.34
		(3.14)	(3.06)	(3.10)
4	Manures and fertilizers	19,333.32	19,500.00	19,416.66
		(0.77)	(0.75)	(0.76)
5	Weeding	13,750.00	14,083.32	13,916.66
		(0.55)	(0.54)	(0.55)
6	Irrigation	18,833.32	18,916.65	18,874.99
		(0.75)	(0.73)	(0.74)
7	Plant protection	12,333.32	12,166.65	12,249.99
		(0.49)	(0.47)	(0.48)
	Total labour cost	1,81,333.28	1,82,166.59	1,81,749.94
		(7.21)	(7.04)	(7.12)
B.	**Material cost**			
1	Planting material	6,30,833.32	6,47,166.65	6,38,999.99
		(25.09)	(25.00)	(25.05)
3	Farm yard manure	52,041.00	55,100.00	53,570.50
		(2.07)	(2.13)	(2.10)
4	Fertilizers	59,709.31	63,990.67	61,849.99
		(2.37)	(2.47)	(2.42)

5	Plant protection chemicals	41,375.32	47,437.00	44,406.16
		Category I	**Category II**	**Overall**
		(1.65)	(1.83)	(1.74)
6	Polythene bags	1,20,666.67	1,22,666.67	1,21,666.67
		(4.80)	(4.74)	(4.77)
7	Growth regulators	33,041.00	36,200.00	34,620.50
		(1.31)	(1.40)	(1.36)
8	Soil	5,63,500.00	5,80,333.32	5,71,916.66
		(22.41)	(22.42)	(22.42)
9	Borewell	3,20,000.00	3,25,000.00	3,22,500.00
		(12.73)	(12.56)	(12.65)
10	Farm building	2,13,700.00	2,25,000.00	2,19,350.00
		(8.50)	(8.69)	(8.60)
11	Implements and machinery	2,98,000.00	3,03,223.00	3,00,611.50
		(11.85)	(11.71)	(11.78)
	Total material cost	23,32,959.40	24,06,217.31	23,69,588.36
		(92.79)	(92.96)	(92.88)
	Establishment cost (A+B)	25,14,292.68	25,88,383.90	25,51,338.29
		(100.00)	(100.00)	(100.00)

Annexure I: Establishment Cost Of Commercial Floricultural Nursery (Rs. Per Hectare)

Sl. No.	Particulars	Category I	Category II	Overall
A	**Operational costs:**		-	
1	Human Labour	2,16,961.67	2,17,029.83	2,16,995.75
		(12.02)	(11.67)	(11.85)
	a) Hired labour	1,88,961.67	1,92,029.83	1,90,495.75
	b) Owned labour	28,000.00	25,000.00	26,500.00
2	Machine Labour	10,115.65	11,916.65	11,016.15
		(0.56)	(0.64)	(0.60)
3	Manures	27,916.65	29,000.00	28,458.33
		(1.55)	(1.56)	(1.56)
4	Fertilizers	48,165.50	50,333.33	49,249.41
		(2.67)	(2.71)	(2.69)
5	Plant Protection Chemicals	23,800.65	25,166.65	24,483.65
		(1.32)	(1.35)	(1.34)
6	Polythene bags	1,29,169.83	1,37,246.50	1,33,208.16
		(7.16)	(7.38)	(7.27)
7	Growth Regulators	11,525.00	12,791.65	12,158.33
		(0.64)	(0.69)	(0.67)
8	Plant material	1,31,547.00	1,37,031.33	1,34,289.16
		(7.29)	(7.37)	(7.33)

9	Soil	63,854.21	70,154.13	67,004.17
		(3.54)	(3.77)	(3.66)
		Category I	**Category II**	**Overall**
10	Interest on working capital	82,882.02	86,333.76	84,607.89
		(4.59)	(4.64)	(4.62)
	Total operational cost	7,45,938.17	7,77,003.82	7,61,471.00
		(41.33)	(41.79)	(41.56)
B	**Fixed cost**			
1	Rental value of land	2,06,833.33	2,06,833.33	2,06,833.33
		(11.46)	(11.12)	(11.29)
2	Depreciation	71,458.35	71,991.65	71,725.00
		(3.96)	(3.87)	(3.92)
3	Interest on fixed capital	83,170.00	85,322.30	84,246.15
		(4.16)	(4.59)	(4.38)
4	Annuity value of establishment cost	6,97,491.26	7,18,042.88	7,07,767.07
		(38.64)	(38.62)	(38.63)
	Total fixed cost	10,59,011.15	10,82,248.36	10,70,629.76
		(58.67)	(58.21)	(58.44)
	Total costs (A+B)	18,04,949.32	18,59,252.18	18,32,100.75
		(100.00)	(100.00)	(100.00)
	Gross returns	22,67,312.75	24,87,302.33	23,77,307.54
	Net returns	4,62,363.43	6,28,050.15	5,45,206.79

Annexure II: Maintenance Costs Of Commercial Floricultural Nursery (Rs. Per Ha)

Note: Figures within parentheses are the percentages to the totals.