



A Study on Costs And Returns of Commercial Floricultural Nurseries in East Godavari District of Andhra Pradesh

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ABSTRACT

The present study is intended to analyse the costs and returns involved in establishment and maintenance of commercial floricultural nurseries in Kadiyam mandal of East Godavari district of Andhra Pradesh. The floricultural nurseries were categorized into two groups category I (< one hectare) and category II (> one hectare) based on area. The establishment cost incurred per hectare ranged between Rs. 25,14,299.89 for category I to Rs. 25,88,383.90 for category II. The recurring costs per hectare for maintenance of floricultural nurseries was Rs. 18,04,891.10 for category I and Rs. 18,59,193.98 for category II. The net returns per hectare obtained were Rs. 4,62,363.43 and Rs. 6,28,050.15 for category I and II respectively.

Key words : Establishment cost, Floricultural nursery, Maintenance costs, Returns.

With changing life styles and increased urban affluence, floriculture has assumed a definite commercial status in recent times. Increased potential of commercial floriculture has resulted in the blossoming of this field into a viable agri-business option. Improved communication and transportation facilities have increased their availability in every part of the world. The commercial activity of production and marketing of floriculture products is also a source of gainful and quality employment to scores of people.

Floriculture is identified by National Horticultural Board as promoting thrust area for investment and diversification of horticulture and agriculture activities. Very few studies have been done on the economic aspects of floricultural nursery management. There is every need to know the costs involved and returns obtained from floricultural nursery. Hence the economics of commercial floricultural nursery management has to be studied. Andhra Pradesh occupies a major position in area as well production of flowers in India. Nearly 19.45 thousand hectares of land is estimated to be under flower production in Andhra Pradesh. Kadiyam mandal occupies the first position in area under flower cultivation and nursery in coastal Andhra region of Andhra Pradesh.

The present study was taken to focus on the costs and returns of the nursery business. The findings obtained from the study may be useful to

design appropriate policy measures for the planners, administrators and extension workers.

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 (exclusively 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 are Kadiyapulanka, Vemagiri, K.Savaram, Muramanda. Two different size categories were made in the sample respondents based on the mean floricultural nursery area i.e., category I having less than one hectare nursery area and category II having nursery area more than one hectare. From each category 15 nursery enterprises were selected randomly, making total sample size of 30 floricultural nurseries.

Computation of Costs and Returns

Floricultural nursery is a perennial business with an approximate economic life span of 5 years. The cost incurred can be classified into two categories viz., (1) establishment cost and (2) maintenance cost. It is to be done by working out the simple averages of various costs and returns involved in maintenance of nurseries. As floricultural

nurseries are perennial in nature, establishment cost was estimated and annuity value of establishment cost was worked out.

$$\text{Annuity value} = \frac{[C (1+r)^N] [1-(1+r)]}{1 - (1+r)^N}$$

Where, C- capital

r- rate of interest

N- number of years of economic life

Establishment Cost:

The establishment costs include all the expenditure incurred during the initial year for the establishment of floricultural nursery. Items like cost of ploughing, levelling and digging of pits, planting material, manures and fertilizers, plant protection chemicals, cost of irrigation, after cultivation practices, earthing up, making of field channels were included.

Annuity value:

The establishment cost which is incurred during the establishment of floricultural nursery is divided equally among each year of its economic life span and added to fixed cost for calculating the cost of cultivation.

Maintenance Cost:

All recurring costs required for maintaining the plants and its health during economic life span of floricultural nursery such as expenditure on cultural practices, manures and fertilizers, plant protection chemicals, irrigation, pruning, weeding etc., were considered as maintenance costs. Besides, interest on fixed and working capital, annual depreciation on equipments, land rent and annuity value of establishment were also included for working out the cost of cultivation.

Cost of cultivation according to cost concepts:

Cost A₁, cost A₂, cost B and cost C were considered.

The specific objectives for the study are as under.

1. To study the cost of establishment of commercial floricultural nursery.
2. To study the cost of cultivation and returns from commercial floricultural nursery.

RESULTS AND DISCUSSION

Establishment Cost Floriculture Nursery

The cost of establishment of the floricultural nursery per hectare was estimated by using actual physical requirements and prevailing market input

prices during the reference year 2010-11. The establishment cost includes the maintenance cost i.e., up to the end of first year. The establishment cost included (a) labour costs on operations like land preparation, planting, application of manures and fertilizers, irrigation, weeding and plant protection operations and (b) material cost which include the cost on items like plant material, planting implements, farm yard manures, fertilizers, plant protection chemicals, growth regulators, polythene bags, soil, borewell, farm building and implements and machinery.

The study revealed that a capital outlay of Rs. 25,14,299.89 per hectare for category I and Rs. 25,88,383.90 per hectare for category II and on an overall Rs. 25,51,338.29 was incurred (Table 1). Out of this, labour cost accounted for 7.21 per cent for category I, 7.04 per cent for category II and on an overall 7.12 per cent of the total establishment cost for floricultural nursery. Material cost accounted for 92.79 per cent for category I, 92.96 per cent for category II and on an overall 92.88 per cent for floricultural nursery of the total establishment cost.

The major item of labour cost was planting which accounted for 3.14 per cent for category I, 3.06 per cent for category II and on an overall 3.10 per cent for floricultural nurseries of total establishment cost followed by land preparation that accounted for 0.97 per cent and 0.95 per cent, manures and fertilizers accounted for 0.77 per cent and 0.75 per cent, irrigation accounted for 0.75 per cent and 0.73 per cent, weeding accounted for 0.55 per cent and 0.54 per cent, bed preparation accounted for 0.54 per cent and 0.53 per cent and plant protection accounted for 0.49 per cent and 0.47 per cent of the total establishment cost for category I and II nurseries respectively.

The plant material cost was the major item of material cost that accounted for 25.09 per cent and 25.00 per for category I and category II nurseries respectively of the total establishment cost followed by soil accounting for 22.41 and 22.42 per cent, borewell accounting for 12.73 and 12.56 per cent, implements and machinery 11.75 per cent, farm building accounting for 8.50 and 8.69 per cent, polythene bags accounting for 4.80 and 4.74 per cent, fertilizers accounting for 2.37 and 2.47 per cent, farm yard manure accounting for 2.07 and 2.13 per cent, plant protection chemicals accounting for 1.65 and 1.83 per cent and growth regulators accounting for 1.31 and 1.40 per cent for category I and category II nurseries respectively of the total establishment cost.

Table 1. Establishment cost of commercial floricultural nursery (Rs. per hectare).

S. No.	Cost particulars	Category I	Category II	Overall
A.	Labour cost	24,500.00	24,666.65	24,583.33
1	Land preparation	(0.97)	(0.95)	(0.96)
		13,583.32	13,666.65	13,624.99
2	Bed preparation	(0.54)	(0.53)	(0.54)
		79,000.00	79,166.67	79,083.34
3	Planting	(3.14)	(3.06)	(3.10)
		19,333.32	19,500.00	19,416.66
4	Manures and fertilizers	(0.77)	(0.75)	(0.76)
		13,750.00	14,083.32	13,916.66
5	Weeding	(0.55)	(0.54)	(0.55)
		18,833.32	18,916.65	18,874.99
6	Irrigation	(0.75)	(0.73)	(0.74)
		12,333.32	12,166.65	12,249.99
7	Plant protection	(0.49)	(0.47)	(0.48)
		1,81,333.28	1,82,166.59	1,81,749.94
	Total labour cost	(7.21)	(7.04)	(7.12)
B.	Material cost	6,30,833.32	6,47,166.65	6,38,999.99
1	Planting material	(25.09)	(25.00)	(25.05)
		52,041.00	55,100.00	53,570.50
3	Farm yard manure	(2.07)	(2.13)	(2.10)
		59,709.31	63,990.67	61,849.99
4	Fertilizers	(2.37)	(2.47)	(2.42)
		41,375.32	47,437.00	44,406.16
5	Plant protection chemicals	(1.65)	(1.83)	(1.74)
		1,20,666.67	1,22,666.67	1,21,666.67
6	Polythene bags	(4.80)	(4.74)	(4.77)
		33,041.00	36,200.00	34,620.50
7	Growth regulators	(1.31)	(1.40)	(1.36)
		5,63,500.00	5,80,333.32	5,71,916.66
8	Soil	(22.41)	(22.42)	(22.42)
		3,20,000.00	3,25,000.00	3,22,500.00
9	Borewell	(12.73)	(12.56)	(12.65)
		2,13,700.00	2,25,000.00	2,19,350.00
10	Farm building	(8.50)	(8.69)	(8.60)
		2,98,000.00	3,03,223.00	3,00,611.50
11	Implements and machinery	(11.85)	(11.71)	(11.78)
		23,32,959.40	24,06,217.31	23,69,588.36
	Total material cost	(92.79)	(92.96)	(92.88)
		25,14,292.68	25,88,383.90	25,51,338.29
	Establishment cost (A+B)	(100.00)	(100.00)	(100.00)

Note: Figures in Parantheses indicate percentage to total.

Table 2. Cost of cultivation of commercial floricultural nursery (Rs. per ha).

S. No.	Particulars	Category I	Category II	Overall
A	Operational costs:			
1	Human Labour	2,16,961.67 (12.02)	2,17,029.83 (11.67)	2,16,995.75 (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 (0.56)	11,916.65 (0.64)	11,016.15 (0.60)
3	Manures	27,916.65 (1.55)	29,000.00 (1.56)	28,458.33 (1.56)
4	Fertilizers	48,165.50 (2.67)	50,333.33 (2.71)	49,249.41 (2.69)
5	Plant Protection Chemicals	23,800.65 (1.32)	25,166.65 (1.35)	24,483.65 (1.34)
6	Polythene bags	1,29,169.83 (7.16)	1,37,246.50 (7.38)	1,33,208.16 (7.27)
7	Growth Regulators	11,525.00 (0.64)	12,791.65 (0.69)	12,158.33 (0.67)
8	Plant material	1,31,547.00 (7.29)	1,37,031.33 (7.37)	1,34,289.16 (7.33)
9	Soil	63,854.21 (3.54)	70,154.13 (3.77)	67,004.17 (3.66)
10	Interest on working capital	82,882.02 (4.59)	86,333.76 (4.64)	84,607.89 (4.62)
	Total operational cost	7,45,938.17 (41.33)	7,77,003.82 (41.79)	7,61,471.00 (41.56)
B	Fixed cost			
1	Rental value of land	2,06,833.33 (11.46)	2,06,833.33 (11.12)	2,06,833.33 (11.29)
2	Depreciation	71,458.35 (3.96)	71,991.65 (3.87)	71,725.00 (3.92)
3	Interest on fixed capital	83,170.00 (4.16)	85,322.30 (4.59)	84,246.15 (4.38)
	Annuity value of establishment cost	6,97,491.26 (38.64)	7,18,042.88 (38.62)	7,07,767.07 (38.63)
	Total fixed cost	10,59,011.15 (58.67)	10,82,248.36 (58.21)	10,70,629.76 (58.44)
	Total costs (A+B)	18,04,949.32 (100.00)	18,59,252.18 (100.00)	18,32,100.75 (100.00)

Note: Figures in Parantheses indicate percentage to total.

The major item of total establishment cost was plant material which accounted for 25.09 and 25.00 for category I and II nurseries respectively.

Cost of Cultivation of Commercial Floricultural Nursery per Hectare

The cost of cultivation includes operational costs and fixed costs were presented in Table 2.

Operational Costs

Operational costs include labour costs and materials like farm yard manures, fertilizers, plant protection chemicals, growth regulators, polythene bags, planting material and interest on working capital.

Among the different operations, cost of human labour accounted for the major portion of the operational costs in both the categories of nursery. The amount spent on human labour varied from Rs. 2,16,961.66 per hectare for category I to Rs. 2,17,029.83 per hectare for category II and on an overall Rs. 2,16,995.75 per hectare for floricultural nursery.

The next important item for category I nurseries was plant material that accounted for 7.29 per cent followed by polythene bags that accounted for 7.16 of total cost of cultivation.

In category II nurseries the item that was next to human labour was polythene bags that accounted for 7.38 per cent followed by plant material that accounted for 7.37 per cent of total cost of cultivation.

The interest on working capital was the fourth item in the operational cost. It accounts for 4.59 and 4.64 per cent followed by the expenditure on fertilizers that was 2.67 and 2.71 per cent, manures 1.55 and 1.56 per cent for category I and II nurseries respectively of total cost of cultivation. The other minor items of operational cost were growth regulators accounting for 0.64 and 0.69 per cent and machine labour 0.56 and 0.64 per cent for category I and category II nurseries respectively of the total cost of cultivation.

It can be inferred from the above results that the operational costs of category II nurseries were higher than category I nurseries.

Fixed Costs

It includes rental value of owned land, interest on fixed capital, depreciation and annuity value of establishment cost.

Fixed costs accounted for Rs. 10,58,952.93 per hectare forming 58.67 per cent for category I nurseries and Rs. 10,82,190.16 per hectare forming 58.21 per cent for category II nurseries of the total cost of cultivation.

Annuity value of establishment cost was the major cost in total fixed costs and it was Rs. 6,97,491.26 per hectare for category I, Rs. 7,18,042.88 for category II and Rs. 7,07,767.07 per hectare on an overall for floricultural nursery. Rental value of land was the next highest fixed costs item in floricultural nursery in both the categories I and II. The per annum rental value owned of land was Rs. 2,06,833.32 per hectare for both category I and II nurseries forming 11.49 and 11.12 per cent for category I and II respectively of the total cost of cultivation.

The other costs in fixed cost were interest on fixed capital accounting Rs. 83,170 (4.61 %) and Rs. 85,322.30 (4.59 %) per hectare followed by depreciation accounting Rs. 71,458.35 (3.69 %) and Rs. 71,991.65 (3.87 %) for category I and category II nurseries respectively of the total cost of cultivation.

The variable costs as well as fixed cost of category II nurseries are ahead of the category I nurseries. This difference in variable and fixed costs between the category II and category I nurseries was due to intensive maintenance of the floriculture nursery gardens by category II nursery entrepreneurs.

When we compare the operational costs and fixed costs as the percentage of total cost of both the categories of nurseries, it remains same with very minor difference between category I and category II.

Costs and Returns of Floricultural Nursery by Cost Concepts

Cost 'A₁' includes all the variable costs (excluding the imputed value of family labour) + interest on working capital + depreciation. The cost 'A₁' in case of category I nurseries was worked out to be Rs. 7,89,396.52 per hectare and Rs. 8,23,995.47 per hectare in case of category II nurseries with an overall average of Rs. 8,06,696.0 per hectare (Table 3).

Cost 'A₂' includes cost 'A₁' plus rental value of leased in land, but unfortunately the sample floricultural nursery entrepreneurs have not taken land on lease basis. So cost 'A₂' was same as that of cost 'A₁'.

Table 3. Costs and returns of floricultural nursery by cost concepts of different size groups.

Particulars	(Rs. per hectare).		
	Category 1	Category 2	Overall
Cost of maintaining per hectare floricultural nursery			
Cost A ₁	7,89,396.52	8,23,995.47	8,06,696.00
Cost A ₂	-do-	-do-	-do-
Cost B	17,76,949.32	18,34,252.18	18,05,600.75
Cost C	18,04,949.32	18,59,252.18	18,32,100.75
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

Cost 'B' includes cost 'A₂' plus rental value of owned land, interest on fixed capital and annuity value of establishment cost. Cost 'B' in case of category I nurseries was Rs. 17,76,949.32 per hectare and for category II nurseries was worked out to be Rs. 18,34,252.18 per hectare. The overall average was worked out to be Rs. 18,32,100.75 per hectare.

Cost 'C' includes cost 'B' plus imputed value of family labour and was found to be Rs. 18,04,949.32 per hectare for category I nurseries and Rs. 18,59,252.18 per hectare for category II nurseries with an overall average of Rs. 18,32,100.75 per hectare. This cost 'C' is the commercial cost of cultivation. It indicates the total cost of cultivation of floricultural nursery. The cost of cultivation of the nursery ranging from Rs. 18,04,949.32 to Rs. 18,59,252.18 per hectare depending on the size. This clearly indicates the capital intensive nature of the floricultural nursery business. The cost of cultivation of the category II nurseries is higher than category I nurseries, this may be due to higher investment in plant material, polythene bags and other inputs.

Returns

It was observed that on an average the floricultural nurseries obtained gross income of Rs. 23,77,307.75 per hectare. Within the different size groups the gross income varied from Rs. 22,67,312.75 per hectare in category I to Rs. 24,87,302.75 per hectare in category II. Net income

per hectare of floricultural nursery on an average was Rs. 5,45,206.79 on overall for floricultural nurseries. The higher net income per hectare was in category II nurseries accounting Rs. 6,28,050.15, while it was Rs. 4,62,363.43 per hectare in category I nurseries. Study conducted by Haque, Monayam Miah and Rashid on plant nursery business in Gazipur and Jessore district of Bangladesh revealed that the yearly net returns per ha for private, government, and NGO nursery were Tk. 215766, Tk. 120149, and Tk. 535961, respectively.

CONCLUSION

The initial investment for the establishment of a commercial floricultural nursery on an average was Rs. 25,51,338.29 per hectare. The average cost of cultivation of commercial floricultural nursery was Rs. 18,32,100.75 per hectare and the net returns on an average was Rs. 5,45,206.79 per hectare. The costs and returns of commercial floricultural nursery clearly indicated that there exist a direct relation between size of the floricultural nursery and costs and returns. The results also showed that floricultural nursery is capital intensive as well as profitable enterprise.

LITERATURE CITED

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