

Original Research Article

Economic Analysis of Cut Flowers under Protected Condition in Sangli District of Maharashtra

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ABSTRACT

Protected Cultivation Technology (PCT) is used to protect plants from adverse climatic conditions. The economics of cut flowers evaluated for the year 2018-2019 using 32 flower growers i.e. sixteen farmer of each from Rose and Gerbera in Sangli district . The per unit (0.10 ha) establishment cost was high in Gerbera ₹ 1499900 followed by Rose ₹ 1383800. The subsidy amount for both was fifty percent. Cost C was high in case rose it was ₹ 522223.6 followed by Gerbera ₹ 464526.9. While yield obtained was 210000 flowers of Rose and 280000 flowers of Gerbera. The gross return obtained from Rose and Gerbera was ₹ 735000 and ₹ 700000 respectively. In all farms B:C ratio was more than unity 1.4 in Rose and 1.5 in Gerbera which was reveled that cultivation of crops under PCT is profitable.

Keywords

PCT, Rose,
Gerbera,
Establishment cost

Introduction

Floriculture is a dynamic, global, fast-growing industry characterized by important changes in distribution network. Floricultural production contains a wide variety of different types of plants and plant materials. It comprises of commercial production of cut flowers, loose flowers, cut greens, seeds, bulbs and landscape plants, their marketing and production of value added products from them. Cut flowers generally mean all cut plant components the economic value of which lies in decorative effects of their blossoms. The major flowers in this category are roses, gladiolus, tuberose, orchids and more recently liliums, gerbera, chrysanthemum, gypsophila. Rose and Gerbera is the principal cut flower grown all over the country, even though in terms of total area.

Though the annual domestic demand for the flowers is growing at a rate of over 25% and international demand at around Rs 90,000 crore. The export of Indian floriculture in the world market is very small i.e 19726.56 MT flowers in 2018-2019 which is gradually decreases in last two years. Quantity of floriculture imports to India from rest of the world in 2018-2019 was 535.82 MT. In India total area under floriculture was 313 (000 Ha) and the production was 2865 (000 MT). While in Maharashtra total area under floriculture in 2008-2019 was 11.36 (000 Ha) and the production of loose and cut flowers was 57.61 (000 MT) and 0.11 (000 MT).

There is good demand for the cut flowers but the production and supply is very less but lot of farmers are also showing interest in the cultivation of these crops under protected cultivation. Keeping in view these aspects, the present study was a modest attempt to analyze the economics of cut flowers under

protected condition in Sangli district of Maharashtra. The specific objectives were : to estimate investment pattern, cost and returns analysis of cut flowers under protected cultivation technology.

Materials and Methods

The mainly grown cut flowers in Maharashtra are rose and gerbera was selected on its area of production and market potential in Sangli district. Sangli district is purposively selected as large number of cut flower growers available. In Sangli district Walwa and Shirala are mojar rose and gerbera growing tehsils selected. From each tehsil four villages and from each village two rose growers and two gerbera growers were selected purposively. The total 32 samples selected from the study area. The primary data required for the schedule was collected through personal interview method with help of pre-tested schedules and the data pertained to the 2018-2019 crop year.

For the purpose of analysis to meet the objectives of the study, different analytical tools and techniques employed are presented here under. Tabular presentation was adopted to compile the investment pattern analysis, budgeting technique was used to study cost structure, returns and profits. Simple statistical tools like averages and percentages were used to compare, contrast and interpret results properly.

Results and Discussions

1. Investment pattern in PCT crop cultivation (0.10 Ha)

It was observed from the Table 1, that establishment of PCT require more investment (₹ 1383800 in rose and ₹ 1499900 in gerbera). It was high due to the items like PCT structure, fertigation unit, bed

preparation, planting material and electric installation. For PCT structure require more investment. It was high is case of rose farm constituted about 50.58 per cent of total establishment cost because rose polyhouse was fully controlled type polyhouse. Followed by gerbera it was 48.66 per cent and it was semi- controlled polyhouse. In case of bed preparation it was high in gerbera which was 29.86 per cent followed by the rose that is 10.87 per cent to the total establishment cost. In gerbera garden soilless media that is cocopeat was used for the preparation of bed along with pots and iron stand and in rose beds were prepared with help of soil media. The rose farms spent more on plant materials i.e. 4.95 per cent and gerbera it was 1.67 per cent share to the total establishment cost. The other facility regarding electricity, irrigation and fertigation structure and sprayers are also important for protected cultivation unit having share 0.36, 5.78, 1.44 per cent in rose while 0.30, 13.33, 1.33 per cent in gerbera. In case of manure, fertilizer and plant protection it was 2.72, 1.01, 0.45 per cent share of rose and 1.03 percent fertilizers and 0.35 per cent of plant protection in establishment cost.

The average apportioned establishment cost presented in table 2, for per unit of protected cultivation unit was found to be high in gerbera of ₹ 191730 followed by rose ₹ 183600. Since the life period of different investment components were used for calculation, the most important component of the apportioned establishment cost.

The similar results were observed in studies carried out by Gamangatti and Patil (2018) in their study on Economic Evaluation of Protected Cultivation Technology (PCT) for Horticulture Crops that the total establishment cost for Rose farm was 175217 \$/ha.

Per unit pattern of input use in cultivation of cut flowers

Per unit physical inputs of the cut flower cultivation are estimated in table3. The human labour used to the extent of 147 days in rose farms followed by gerbera 130.5 days. The use of machine labour in farms was seen high, which charges ₹ 1700 in gerbera farm and in rose ₹ 1400. The total cost of

fertilizers was ₹ 30000 in rose followed by ₹ 25000 in gerbera. Expenditure carried out for the farm in a year on fungicide is high in gerbera which was ₹ 50000 and in rose it was ₹ 41000 for the one cost of plant protection over an year in rose ₹ 40000 followed by gerbera which was ₹ 29000 hectare farm. As the more pest incidence occur in protected cultivation.

Table.1 Per unit investment pattern in protected cultivation unit 0.10 ha (₹)

Sr.No	Particulars	Rose	Gerbera
1	Land development	1900 (0.13)	1500 (0.10)
2	Poly-house construction	700000 (50.58)	730000 (48.66)
3	Bed Preparation	150500 (10.87)	447900 (29.86)
4	Planting material	68500 (4.95)	25125 (1.67)
5	Manure	37650 (2.72)	0
6	Fertilizer	14000 (1.01)	15500 (1.03)
7	Plant Protection	6250 (0.45)	5375 (0.35)
8	Cold Storage	250000 (18.06)	0
9	GP room/ Store room	50000 (3.61)	50000 (3.33)
10	Sprayers	20000 (1.44)	20000 (1.33)
11	Irrigation Structure	80000 (5.78)	200000 (13.33)
12	Electric installation	5000 (0.36)	4500 (0.30)
	Establishment Cost	1383800	1499900
		(100)	(100)
	Subsidy (50 %)	691900	749950
	Total Establishment Cost with subsidy	691900	749950

(Figures in parathesis contains per centage to total)

Table.2 Per unit apportioned cost of protected cultivation unit 0.10 ha (₹)

Sr. No.	Particulars	Life (Years)	Rose	Gerbera
1	Land development	1	1900 (1.03)	1500 (0.78)
2	Poly-house construction	20	35000 (19.06)	36500 (19.03)
3	Bed Preparation	5	30100 (16.39)	89580 (46.72)
4	Planting material	*	13700 (7.46)	8375 (4.36)
5	Manure	1	37650 (20.50)	0
6	Fertilizer	1	14000 (7.62)	15500 (8.08)
7	Plant Protection	1	6250 (3.40)	5375 (2.80)
8	Cold Storage	10	25000 (13.61)	0
9	GP room/ Store room	10	5000 (2.72)	5000 (2.60)
10	Sprayers	5	4000 (2.17)	4000 (2.08)
11	Irrigation Structure	8	10000 (5.44)	25000 (13.03)
12	Electric installation	5	1000 (0.54)	900 (0.46)
	Apportioned Cost		183600 (100)	191730 (100)
	Subsidy (50 %)		91800	95865
	Total Apportioned Cost with subsidy		91800	95865

(Figures in the parentheses indicate percentage to total)

*Five years for Rose, Three years gerbera

Table.3 Pattern of input use in cultivation of cut flower

Sr. No	Resources	Unit	Rose (n=16)	Gerbera (n=16)
1	Family Human labour			
A	Male	Days	40 (48.78)	12 (9.83)
B	Female	Days	0 (0)	0 (0)
	Total family Labour	Days	40 (27.21)	12 (9.19)
2	Hired Human labour			
A	Male	Days	42 (51.22)	110 (78.50)
B	Female	Days	65 (100)	8.5 (100)
	Total Hired Labour	Days	107 (72.78)	118.5 (90.80)
3	Total Human Labour			
A	Male	Days	82 (100)	122 (100)
B	Female	Days	65 (100)	8.5 (100)
	Total Human Labour		147 (100)	130.5 (100)
4	Machinery charges	₹	1400	1700
5	Fertilizers	₹	25000	25000
6	Fungicides	₹	41000	50000
7	Pesticides	₹	40000	29000

(Figures in the parentheses indicate percentage to total human labour)

Table.4 Per unit cost of cultivation of cut flower (₹)

Sr. No.	Particular	Rose	Gerbera
1	Hired Human Labour		
	Male	10500 (2.01)	27500 (5.92)
	Female	13000 (2.48)	1700 (0.36)
2	Machinery charges	1400 (0.26)	1700 (0.36)
3	Fertilizers	30000 (5.74)	25000 (5.38)
4	Irrigation charges	2000 (0.38)	1500 (0.32)
5	Fungicides	41000 (7.85)	50000 (10.76)
6	Pesticides	40000 (7.65)	29000 (6.24)
7	Repairs to implement and	550	330

	machinery	(0.10)	(0.07)
8	Land revenue	500 (0.09)	400 (0.08)
	Working capital	138950 (26.60)	137130 (29.52)
10	Depreciation	26792.25 (5.13)	4379.82 (0.94)
11	Apportioned Establishment Cost	91800 (17.57)	95865 (20.63)
12	Interest on working capital (12%)	16674 (3.19)	16455.6 (3.54)
	Cost A	274216.3 (52.50)	253830.4 (54.64)
13	Rental value of land	122000 (23.36)	116266.7 (25.02)
14	Interest on fixed cost (11 %)	116007.1 (22.21)	91429.8 (19.68)
	Cost B	512223.4 (98.08)	461526.9 (99.35)
15	Family Human Labour		
	Male	10000 (1.91)	3000 (0.64)
	Female	0 (0)	0 (0)
	Cost C	522223.4 (100)	464526.9 (100)

Figures in the parentheses indicate percentage to Cost C)

Table.5 Per unit profitability (0.10 Ha)

Sr. No.	Particular	Rose (Amount ₹)	Gerbera (Amount ₹)
1	Yield / year	210000	280000
2	Value (₹)	3.5	2.5
3	Gross return	735000	700000
4	Cost A	274216.3	253830.4
5	Cost B	512223.4	461526.9
6	Cost C	522223.4	464526.9
7	Farm Business income (Gross return - Cost A)	460783.7	446169.6
8	Family Labour Income (Gross return - Cost B)	222776.6	238473.1
9	Net Profit (Gross return - Cost C)	212776.6	235473.1
10	Benefit-Cost ratio (Gross return / Cost C)	1.4	1.5

Cost and returns from cut flower cultivation

Results observed in the table 3 the cost of cultivation i.e. cost C of rose was ₹ 522223.6 followed by gerbera ₹ 464526.9. The share of apportioned cost in Gerbera and Rose farms was 20.63 per cent and 17.5 per cent respectively. The hired human labour share to the total cost of was seen high in gerbera followed by rose. Depreciation on farm implements and interest on working capital in rose farm was 5.13 per cent and 3.19 per cent followed by the gerbera i.e. 0.94 per cent and 3.54 per cent. Interest on working capital is 11 per cent of the total fixed cost which was high in rose farm 22.21 per cent followed by gerbera which was 19.68 per cent to the total share. In case of family labour share to the total cost in rose farm 1.91 per cent male and there was no female and in case of gerbera 0.64 per cent male and no females are observed. In case the share of land revenue and repairs to implements was observed very negligible. Similar results observe in study of Kadam R. (2012) an unpublished thesis on the Economic analysis of production and marketing of selected cut flowers grown under protected cultivation in Satara district that was Cost A and Cost B was 64.29 per cent ,95.41 per cent in rose and 66.42 per cent and 95.22 per cent in gerbera.

Profitability of cut flower production

It revealed from Table 5 that the total production was 210000 flowers of rose and 280000 flowers of gerbera was harvested. The gross return obtained from rose and gerbera was ₹ 735000 and ₹ 700000 respectively. The farm business income was found to be ₹ 460783.7 in rose and ₹ 446169.6 in gerbera likewise family labour income was ₹ 222776.6 for rose while ₹

238473.1 from gerbera. The Output-Input ratio for rose and gerbera was 1.4 and 1.5 respectively. This shows the cultivation of cut flower in protected condition is profitable business. Kadam R. (2012) showed that similar ratio for Rose and Gerbera i.e. 1.6 and 1.7 resp.

In conclusion, PCT require high investment therefore, by involving low cost polyhouse structure and good quality varieties the floriculture industry should be encouraged. Rose and gerbera crops should be cultivated on large area because, cultivation of these crops in Sangli district is highly profitable proposition so by giving subsidy government should encourage farmers to adopt technology.

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