Journal of Pharmacognosy and Phytochemistry
Available online at www.phytojournal.com

E-ISSN: 2278-4136
P-ISSN: 2349-8234
www.phytojournal.com
JPP 2021; Sp 10(1): 01-04
Received: 21-10-2020
Accepted: 02-12-2020

Balaji KS
Department of Agricultural Economics, Naini Agricultural Institute, SHUATS, Prayagraj, Uttar Pradesh, India

Mukesh Kumar Maurya
Department of Agricultural Economics, Naini Agricultural Institute, SHUATS, Prayagraj, Uttar Pradesh, India

Corresponding Author:
Balaji KS
Department of Agricultural Economics, Naini Agricultural Institute, SHUATS, Prayagraj, Uttar Pradesh, India

An economic analysis of production of cut roses in Krishnagiri district of Tamil Nadu

Balaji KS and Mukesh Kumar Maurya

Abstract
The present study entitled "An Economic Analysis of Production of Cut roses in Krishnagiri district of Tamilnadu" was conducted in the year 2019-2020. The study made use of multi stage random sampling technique to select 105 farmers from the selected villages of the study area. Well-structured questionnaires and interview schedule were conducted for the purpose of data collection. The production of cut roses has increased largely in the area due to increase in productivity of the crop. Resource use structure was found varied among the three size groups. The per cost of cultivation was highest on small size farms (Rs. 107241/ha) compared to medium (Rs. 105332/ha) and large farms (Rs. 103300/ha). Gross returns per hectare is highest in large farms than medium and small farms. Input output ratio is highest in large farms and lowest in small farms. The study gives clear information of extent of production of cut roses in Krishnagiri district of Tamilnadu.

Keywords: Cut rose, cost and returns, input output ratio

Introduction
Cut Rose has become a part and parcel of life. It is connected with all the phases of human life. Roses are grown on a large scale for cut flowers and on small scale for planting shrubs, bushes, standard rose, climbers' ramblers, and edges, rockeries in the garden and pot plants for decorating the houses. There is considerable demand for loose flowers for making garlands, bouquets and floral decoration. Rose is a perennial erect shrub with beautiful sweet-scented flowers valued for worship, making garlands, preparation of rose oil, rose water, rose attar and rose Otto. Rose oil is one of the oldest and most valuable perfumery raw materials. It imparts characteristic fragrance top notes of perfumes.

Research Methodology
The study was conducted in Krishnagiri district of Tamilnadu. Out of the total blocks of Krishnagiri district, Hosur block and Shoolagiri block were selected purposely due to higher demand of rose in mega city and due to rose cultivation found in large scale in these blocks. 6 villages majorly under rose cultivation were selected randomly for the present study. i.e. 3 villages were selected from Hosur block and 3 villages were selected from Shoolagiri block. A list of all cut rose growers/respondents was prepared with the help of the Head of the village of each selected village from the selected block. Out of the total farmers/ respondents 10% growers was selected from the selected villages which confined to a total of about 105 respondents/ households from small, medium and large respectively. Since there is no marginal farmer undergoing cut rose cultivation in the study area, marginal household data is omitted. Tabulation method is used for analysis of data using necessary statistical tools for interpretation of results.

Measures of Cost Concepts
Cost A_1: It includes the value (seeds, manures and fertilizers, plant protection chemicals, interest on working capital, bullock, tractor, depreciation, tax to government etc.)
Cost A_2 = Cost A_1+ Rent paid for leased-in land, if any.
Cost B = Cost A_2 + Imputed rental value of owned land + interest on owned fixed capital.
Cost C = Cost B + Imputed value of family labor. Cost C is the total cost of cultivation or gross cost.

Measures of Farm Profitability
1. Gross Income = per quintal price* yield per hectare in quintal
2. Farm business income = Gross income – Cost A
3. Farm investment income = Net income + rental value of owned land + interest on fixed capital.

4. Net income = Gross income – Cost C
5. Family labor income = Gross income – Cost B
6. Input output ratio (cost benefit ratio) = Cost C - Gross income

Results and Discussion

Cost and returns of cut rose flowers were calculated as a main imperative for the study. Per hectare cost of cultivation was calculated which involve both the establishment and maintenance cost. Different types of cost concepts and farm profitability measures are also involved to depict the gross income and net returns achieved through the cut rose production in the study area.

Table 1: Resource use and cost of cultivation of cut rose per hectare in different size of farms group

S. No	Particulars	Small	Medium	Large	Sample Average
1	Hired human labour	5730 (5.34)	6008 (5.70)	6250 (6.05)	5996 (5.69)
2	Fertilizer	7068 (6.58)	6957 (6.59)	6829 (6.61)	6951 (6.60)
3	Machine power	4327 (4.03)	4559 (4.32)	4800 (4.64)	4562 (4.33)
4	Planting material	15986 (14.90)	14789 (14.04)	13365 (12.93)	14713 (13.97)
5	Bullock labour	1688 (1.57)	1765 (1.67)	1850 (1.79)	1767 (1.67)
6	Plant protection	2750 (2.56)	2560 (2.43)	2324 (2.24)	2544 (2.41)
7	FYM application	9280 (8.65)	9110 (8.64)	9000 (8.71)	9130 (8.67)
8	Irrigation charges	1876 (1.74)	1920 (1.82)	1995 (1.93)	1930 (1.83)
9	Interest on working capital @13%	4881 (4.54)	4964 (4.71)	4930 (4.77)	4925 (4.67)
10	Depreciation	3210 (2.99)	2986 (2.83)	2722 (2.63)	2972 (2.82)
11	Land revenue and taxes	160 (0.14)	160 (0.15)	160 (0.15)	160 (0.15)
12	Interest on fixed capital @10%	1220 (1.13)	1104 (1.05)	1075 (1.04)	1133 (1.07)
13	Rental value of land	20000 (18.64)	20000 (18.98)	20000 (19.36)	20000 (19.00)
14	Family labour	29105 (27.53)	28450 (27.20)	28000 (27.00)	28518 (27.28)
15	Total cost of cultivation	107281 (100)	105332 (100)	103300 (100)	105304 (100)

Table 1 reveals that among different size of farms, the total cost of cultivation incurred by the small farms (Rs. 107281/ha) is found high compared to medium farms (Rs. 105332/ha) and large farms (Rs. 103300). The sample average is found to be Rs. 105304/ha calculated among the three farms. The cost of human labour, planting material, fertilizers were the items holding a major share in variable costs, because most the operations like harvesting and weeding were human labour-intensive operations and other operations like land preparation and inter culture were bullock labour of human labour intensive. The distribution pattern of operational cost under various inputs revealed that the cost of human hired labour was highest in large farms (Rs. 6250/ha) followed by medium farms (Rs. 6008/ha) and lowest in small farms (Rs. 5730/ha). The cost of the planting material was highest in small farms (Rs. 15986/ha) in comparison to medium farms (Rs. 14789/ha) and large farms (Rs. 13365/ha). Depreciation value was found higher in small farms (Rs. 3210/ha) followed by medium farms (Rs. 2986/ha) and large farms (Rs. 2722/ha). Rental value of land is found to be Rs.20000/ha across all the farms. The sample average of interest on working capital at a rate of 13% is calculated as Rs. 4925/ha and interest on fixed capital at a rate of 10% is calculated as Rs. 1133/ha in different size of farms. Imputed family labour cost sample average is calculated as Rs. 28518/ha.

Table 2: ANOVA for resource use and cost of cultivation for cut rose in different size of farm groups

Source	d.f	S. S	M. S. S	F. Cal	F. Tab 5%	Result	S. Ed (±)	C.D at 5%
Size of group	2	561027.476	280513.738	1.81604823	3.36901636	**NS**	320.89	659.59
Particular	13	2621367748	201643673	1305.44279	2.11916569	**S**	148.54	305.32
Error	26	4016059.19	154463.815	-	-	-	-	-
Total	41	-	-	-	-	-	-	-

In the above ANOVA table, in size group it is calculated that degree of freedom is 2, sum of squares is 561027.476, mean sum of squares is 280513.728, F. Calculated value is 1.81604834, F. Tabulated value at 5% is 3.36901636, result is non-significant, standard deviation is 320.89 and critical difference at 5% is 659.59. In particulars it is calculated that degree of freedom is 13, sum of squares is 2621367748, mean sum of squares is 201643673, F. Calculated value is 1305.44279, F. Tabulated value at 5% is 2.11916569, result is significant, standard deviation is 148.54 and critical difference at 5% is 305.32. In error degree of freedom is 26, sum of squares is 4016059.19 and mean sum of squares is 154463.815.

Table 3: Cost concepts in cut rose per hectare in different size of farms group

S. No	Cost Concepts	Small	Medium	Large	Sample Average
1	Cost A1	56956	55778	54225	55653
2	Cost A2	76956	75778	74225	75653
3	Cost B	78176	76882	75300	76786
4	Cost C	107281	105332	103300	105304

Table 3 reveals the cost concepts calculated on different size of farms group. The different cost concepts include Cost A1, A2, B and C. Cost A1 was highest in small farms (Rs. 56956/ha) followed by medium farms (Rs. 55778/ha) and large farms (Rs. 54225/ha). Cost A2 was found highest in small farms (Rs. 76956/ha) followed by medium (Rs.

75778/ha) and large farms (Rs. 74225/ha). Cost B was found in small, medium and large groups are Rs. 78176/ha, Rs. 76882/ha and Rs. 75300/ha respectively. Cost C or the total cost in small, medium and large size farms are found to be Rs. 107281/ha, Rs. 105332/ha, Rs. 103300/ha respectively. The sample averages for Cost A1, Cost A2, Cost B and Cost C were found to be Rs. 55653/ha, Rs. 75653/ha, Rs. 76786/ha and Rs. 105304/ha respectively in different size of farms group.

Table 4: Cost and Returns in cut rose per hectare in different size of farms group

S. No	Particulars	Small	Medium	Large	Sample Average
1	Total cost of cultivation	107281	105332	103300	105304
2	Yield (qt/ha)	28.8	29.2	29.9	29.3
3	Cost of production (Rs/qt)	3725	3607	3454	3595
4	Return (Rs/qt)	6100	6100	6100	6100
5	Gross returns (Rs/ha)	174868	178011	181808	178229
6	Net returns (Rs/ha)	67587	72679	78508	72924
7	Farm Investment Income	97912	102233	107583	102576
8	Farm Business Income	88807	93783	99583	94057
9	Family Labour Income	29105	28450	28000	28518
10	Input Output Ratio	1:1.63	1:1.68	1:1.76	1:1.69

Table 4 reveals the cost and returns of cut rose calculated in different size of farms group. The total cost of cultivation is higher in small farms (Rs. 107281/ha) compared to medium farms (Rs. 105332/ha) and large farms (Rs. 103300/ha). The sample average of total cost incurred across the different farms is found to be Rs. 105304/ha. The yield value calculated per quintal was found high in large sized farms (29.9) followed by medium farms (29.2) and comparatively lower in small farms (28.8). The cost of production value per quintal is high in small farms (Rs. 3725) in comparison to medium (Rs.3607) and large farms (Rs. 3454). The returns obtained per quintal is obtained as Rs. 6100 across the different size of farms. The gross returns obtained is higher in large farms (Rs. 181808/ha) followed by medium farms (Rs. 178011/ha) and small farms (Rs. 174868/ha). The sample average of gross returns obtained across the different farms attained a value of Rs. 178229/ha. Net returns obtained was found higher in large farms (Rs. 78508/ha) in comparison to medium (Rs.72679/ha) and small farms (Rs. 67587/ha) which accounts for a sample average of Rs. 72924/ha in different size of farms. Farm business income obtained per hectare was highest in large size farms (Rs. 99583/ha) in comparison to medium (Rs. 93783/ha) and small size farms (Rs. 88807/ha). Family labour income in small, medium and large groups were Rs. 29105/ha, Rs. 28450/ha and Rs. 28000/ha respectively. The input output ratio was highest in large farms (1:1.76) followed by medium farms (1:1.68) and lowest in small farms (1:1.63). The sample average of input output ratio is found as 1:1.69.

Table 5: Anova for cost and returns of cut rose in different size of farm groups

Source	d.f	S. S	M. S. S	F. Cal	F. Tab 5%	Result	S. Ed (±)	C.D at 5%
Size of group	2	12207.8956	6103.94778	0.98779806	6.94427191	**NS**	64.18	178.19
Particular	2	55843347.3	27921673.7	4518.54705	6.94427191	**S**	64.18	178.19
Error	4	24717.3911	6179.34778	-	-	-	-	-
Total	8	-	-	-	-	-	-	-

In the above ANOVA table, in size group it is calculated that degree of freedom is 2, sum of squares is 12207.8956, mean sum of squares is 6103.94778, F. Calculated value is 0.98779806, F. Tabulated value at 5% is 6.94427191, result is non-significant, standard deviation is 64.18 and critical difference at 5% is 178.19. In particulars it is calculated that degree of freedom is 2, sum of squares is 55843347.3, mean sum of squares is 27921673.7, F. Calculated value is 4518.54705, F. Tabulated value at 5% is 6.94427191, result is significant, standard deviation is 64.18 and critical difference at 5% is 178.19. In error degree of freedom is 4, sum of squares is 24717.3911 and mean sum of squares is 6179.34778.

Conclusion

The study pertains to the production of cut roses in Krishnagiri district of Tamilnadu with the main objectives of the study prevails in analysing economics of cut rose production with assessment of their cost and returns. Economics of cut rose production is found more profitable in large size farms in comparison to medium and small size farms. Marginal farms are absent since there is no marginal farmer undergoing cut rose cultivation in the study area. The cost of cultivation varied among the size groups. The per hectare cost of cultivation was the highest in small farms and lowest in large farms. The production of cut rose has increased largely due to increase in productivity and increase in area under the crop. Resource use structure and production cost was varied according to the size group of holdings.

References

1. Bahirat JB, Jadhav HG. To study the cost, returns and profitability of rose production in Satara district, Maharashtra, Asian J. Hort 2011;6(2):313-315.
2. Maikadia JJ, Patel KS, Amir NJ. Economics of production of rose cut flower in south Gujarat. International research journal of Agriculture economics and statistics 2012.
3. Mathivanan. A study on rose cultivation and marketing pattern in Hosur taluk. Journal of exclusive management science 2013;2(12):1-19.
4. Sharma, Manoj Kumar. Economic analysis of commercial flower cultivation in Sirmaur district of Himachal Pradesh. Chaudhary Sarwan kumar Himachal Pradesh Krishi Vidyalaya, Palampur 2014.

5. Vanishree M. Production and marketing of jasmine in Chitradurga district, Karnataka- an economic analysis. University of agricultural sciences, Dharwad 2007.
6. Singh, Anil Kumar, Manish Kumar. The economics of marigold flowers in eastern Uttar Pradesh. The journal of rural agricultural research 2014;13(2):75-78.
7. Usman M, Ashfaq M. Economic analysis of tuberose production in Punjab. Sarhad Journal of Agriculture 2013;29(2):279-284
8. Tomar and Singh. Marigold for year-round livelihood. Indian Horticulture 2009;54(4):67.