

International Journal of Statistics and Applied Mathematics

ISSN: 2456-1452

Maths 2023; SP-8(6): 150-154

© 2023 Stats & Maths

<https://www.mathsjournal.com>

Received: 04-08-2023

Accepted: 02-09-2023

Tumesh Kumar Deshlahre

M.Sc. (AG), Department of
Agricultural Economics, CoA,
IGKV, Raipur, Chhattisgarh,
India

Ravi Shrey

Assistant Professors,
Department of Agricultural
Economics, CoA, IGKV, Raipur,
Chhattisgarh, India

Dronak Kumar Sahu

Guest Teacher, CARS, Kurud,
IGKV, Raipur, Chhattisgarh,
India

Corresponding Author:

Tumesh Kumar Deshlahre

M.Sc. (Ag), Department of
Agricultural Economics, CoA,
IGKV, Raipur, Chhattisgarh,
India

An economic analysis of production and marketing of marigold in Raipur District of Chhattisgarh

Tumesh Kumar Deshlahre, Ravi Shrey and Dronak Kumar Sahu

Abstract

The study conducted with the title “An economic analysis of production and marketing of marigold in Raipur district of Chhattisgarh”. The Periphery of Raipur city of Raipur district was selected purposively. 40 vegetable growers were selected from different villages of periphery of Raipur city. Further, the respondents were categorized under marginal, small, medium and large papaya growers. Total sample of 45 farmers were selected randomly. The respondents were classified into three groups viz, marginal (< 1.00 hectares), small (1.01-2.00 hectares), medium (2.01- 4.00 hectares) and large (4.01 hectares and above) farms. The total cost of cultivation in marigold was ₹58556.63/ha. The Variable Cost and Fixed Cost were determined to be ₹38609.45/ha and ₹19947.18/ha, respectively, representing 65.94 per cent and 4.06 per cent of the total cost of cultivation. The overall input-output ratio and B: C ratio was found to be 1:3.20 and 1:2.20. On an overall basis Gross returns (Total Income) was observed to be ₹186006.80/ha. The overall net returns was found to be ₹127828.26/ha and overall production of marigold was 103.34 quintal /ha. The maximum total production per farm was in large farms and noted to be 57.78 qtl/farm.

Keywords: B: C Ratio, gross returns, net returns, input-output ratio

Introduction

Floriculture is the art and knowledge of growing flowers to perfection. Though many people are nostalgic about floriculture, there are others who brush away the idea as a luxury or even wastage of money but the significance and importance of floriculture cannot be ignored. In earlier days the cultivation of flowering plants was limited to landscape gardening and these were not grown as cash crop. Due to high margin of profit in flower cultivation now a days floriculture business is flourishing. Flower cultivation is done in area near to metropolitan or district headquarters. Today, floriculture is sermonized as most remunerative profession with much higher potential returns per unit area than that of some other horticultural crops. There is an increasing demand of flowers all over the world. Flowers are placed their importance in our social system. Flowers are extensively used for decoration, making essential oils, perfumes and medicines, etc.

Marigold, belonging to family Asleraceae, is an important and popular flower of India and ranks third in number after roses and chrysanthemum. It is the native of America. Marigold is a high value and labour intensive crop and it is cultivated by most of the farmers on small scale. The knowledge of cost of cultivation and returns from marigold cultivation is very useful for the cultivators to adjust and coordinate the available resources in a profitable manner. Most of the farmer's livelihood solely depends on the income from Marigold cultivation. The farmers in this area are having more than ten years of experience in marigold cultivation and in early days they were practiced only the conventional way of cultivation and also they don't have enough knowledge on the new advanced method of cultivation. Because of their lack of knowledge and awareness about modern management practices and inefficient and in discriminant use of inputs they have faced the problem of reduction in productivity of Marigold. Marigold is not only grown as ornamental cut flowers and landscape plant but also as a source of natural carotenoid pigment for poultry feed. The area under marigold has increased from 1961.45 ha to 2145.70 ha in Chhattisgarh during the year of 2010-2011 and 2011-2012 (Anonymous NHM Chhattisgarh database).

Areas of cultivation in India

Maharashtra, Karnataka, Andhra Pradesh, Madhya Pradesh, Haryana, Tamil Nadu, Rajasthan, and West Bengal have emerged as major floriculture centres. About 322 thousand hectares of the area were under Cultivation for floriculture in 2020-21. Production of flowers is estimated to be 2151.96 thousand tonnes of loose flowers and 828.09 thousand tonnes of cut flowers in 2020-21 (APEDA, 2023) [1].

India Facts and Figures

The country has exported 23,597.17MT of floriculture products to the world for the worth of Rs. 771.41Crores/ 103.47 USD Millions in 2021-22. Major Export Destinations (2021-22): U.S.A, Netherland, Germany, U.K. United Arab EMTs, and Canada were major importing countries of Indian floriculture during the same period (APEDA, 2023) [1].

Present Scenario of Marigold in Chhattisgarh state

The present area under floriculture in the Chhattisgarh state is 13,089 Ha with the production of 2,29,868 MT approximately in the year 2020-21 (Department of Agriculture, Government of Chhattisgarh, 2022).

Methodology

Sampling technique periphery of Raipur city of Chhattisgarh was purposively chosen as the study area because, it has the larger area under marigold cultivation in the district. A multistage simple random sampling technique (SRS) was adopted to select the villages and the respondents, different farmer involved in marigold production and marketing in Raipur district. The details of the sampling techniques at various stages are given as under.

Costs and returns of marigold cultivation

Despite the costs & return was worked out by old concepts, a standard method of cost of cultivation of marigold was also used. This method is accepted by The Commission of Agricultural Costs and Prices (CACP). Under this method, the cost of cultivation was computed by using the 7 Cost concepts, which are known as cost A₁, cost A₂ cost B₁, cost B₂ and cost C₁, cost C₂, and cost C₃.

Cost A1: Consist of following 16 items of costs

1. Value of hired human labour (permanent and casual)
2. Value of owned bullock labour
3. Value of hired bullock labour
4. Value of owned machinery
5. Hired machinery charged
6. Value of fertilizers
7. Value of manure (produced on farm and purchased)
8. Value of seed (both farm-produced and purchased)
9. Value of insecticides and fungicides.
10. Irrigation charges (both of the owned and hired tube wells, pumping sets etc.)
11. canal-water charges
12. Land revenue, cesses and other taxes
13. Depreciation on farm implements (both of the bullock drawn and worked with human labour)
14. Depreciation on farm building, farm machinery.

15. Interest on the working capital.

16. Miscellaneous expenses (wages of artisans, and repairs to small farm implements).

Cost A₂ = Cost A₁ + Rent paid for Leased in Land.

Cost B₁ = Cost A₁ + Interest on value of Owned fixed Capital assets (excluding land)

Cost B₂ = Cost B₁ + Rental value of owned land

Cost C₁ = Cost B₁ + Imputed value of Family Labour.

Cost C₂ = Cost B₂ + Imputed value of Family labour.

Cost C₃ = Cost C₂ + 10 per cent of cost C₂ taking as managerial allowances.

Income over different cost

Income over cost A₁ = Gross Return – Cost A₁

Income over cost A₂ = Gross Return – Cost A₂

Income over cost B₁ = Gross Return – Cost B₁

Income over cost B₂ = Gross Return – Cost B₂

Income over cost C₁ = Gross Return – Cost C₁

Income over cost C₂ = Gross Return – Cost C₂

Income over cost C₃ = Gross Return – Cost C₃

Net income

It is the difference between total return and total expenses. So, Net income = Gross income - Total expenses.

Input-output ratio: It is the ratio of input and output, which is an under Input - Output Ratio = Value of output / Value of input.

Results and Discussion

Cost of cultivation of marigold crop in study area

Cost of cultivation: Different Costs utilized in the Process of Production are studied to have a better understanding of the cost of marigold cultivation. The results of this analysis are presented in the table below. According to the table 4.6, the total cost of cultivation in marigold was ₹58556.63/ha. The Variable Cost and Fixed Cost were determined to be ₹38609.45/ha and ₹19947.18/ha, respectively, representing 65.94 per cent and 4.06 per cent of the total cost of cultivation. It was also found that the total cost of cultivation in marigold for marginal, small, medium and large farmers was ₹56435.15/ha, ₹58589.75/ha, ₹60411.14/ha and ₹63598.01/ha, respectively. For marginal, small and medium and large farmers the variable costs account for 64.67 per cent, 65.95 per cent, 66.97 per cent and 68.61 per cent respectively. Marginal, small, medium and large farmers, are, spending 35.33 per cent, 34.05 per cent, 33.03 per cent and 31.39 per cent on fixed costs respectively.

From the table 1, it is clearly demonstrates that human labour (hired and family labour) cost was maximum and found to be 28.64 per cent followed by manure and fertilizer (11.47 per cent), plant protection (5.83 per cent), machine power cost (8.85 per cent), seed/plant cost (4.61 per cent), irrigation charges (2.95 per cent), miscellaneous (1.81 per cent) and interest on working capital (1.78 per cent). Also in the overall fixed cost, the rental value of land cost was maximum and found to be 30.74 per cent followed by interest on fixed capital (3.08 per cent), depreciation (0.23 per cent) and land revenue cast (0.02 per cent).

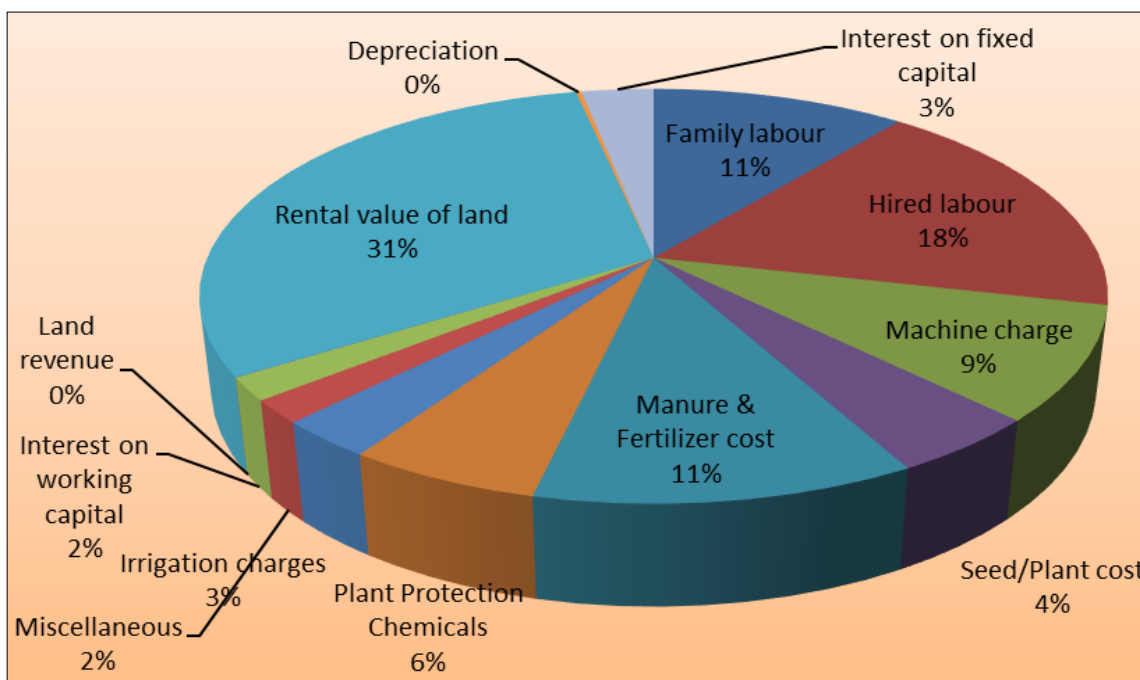


Fig 1: Different Costs of marigold cultivation of overall sample household

Table 1: Cost of cultivation of marigold in Raipur District, (Rs./ha)

Particular	Marginal	Small	Medium	Large	Overall
A. Variable cost					
1. Human labour					
a. Family labour	8250.50(14.62)	7525.22(12.84)	2910.25(4.82)	2650.22(4.17)	6337.36(10.82)
b. Hired labour	7750.50(13.73)	9102.23(15.54)	14500.56(24.00)	16252.22(25.55)	10433.57(17.82)
Total human labour	16001.00(28.35)	16627.45(28.38)	17410.81(28.82)	18902.44(29.72)	16770.93(28.64)
2. Machine charge	4800.25(8.51)	5120.50(8.74)	5500.65(9.11)	6210.50(9.77)	5180.66(8.85)
3. Seed/Plant cost	2561.23(4.54)	2765.33(4.72)	2855.22(4.73)	2866.32(4.51)	2698.98(4.61)
4. Manure & Fertilizer cost	6250.25(11.08)	6815.22(11.63)	7100.25(11.75)	7716.66(12.13)	6716.55(11.47)
5. Plant Protection Chemicals	3312.50(5.87)	3412.40(5.82)	3500.50(5.79)	3655.45(5.75)	3412.95(5.83)
6. Irrigation charges	1550.00(2.75)	1800.50(3.07)	1910.00(3.16)	2010.25(3.16)	1729.63(2.95)
7. Miscellaneous	1045.25(1.85)	1051.43(1.79)	1080.65(1.79)	1095.25(1.72)	1059.82(1.81)
8. Interest on working capital	975.97(1.73)	1048.27(1.79)	1097.36(1.82)	1177.72(1.85)	1039.93(1.78)
Total Variable cost	36496.45(64.67)	38641.10(65.95)	40455.44(66.97)	43634.59(68.61)	38609.45(65.94)
B. Fixed cost					
1. Land revenue	12(0.02)	12(0.02)	12(0.02)	12(0.02)	12.00(0.02)
2. Rental value of land	18000.00(31.90)	18000.00(30.72)	18000.00(29.80)	18000.00(28.30)	18000.00(30.74)
3. Depreciation	125.5(0.22)	135.45(0.23)	142.50(0.24)	150.22(0.24)	133.98(0.23)
4. Interest on fixed capital	1801.2(3.19)	1801.20(3.07)	1801.20(2.98)	1801.20(2.83)	1801.20(3.08)
Total fixed cost	19938.7(35.33)	19948.65(34.05)	19955.7(33.03)	19963.42(31.39)	19947.18(34.06)
Total cost (A+B)	56435.15(100)	58589.75(100)	60411.14(100)	63598.01(100)	58556.63(100)

Note: Figure in parenthesis was percentage to the total cost of cultivation

Measures of farm profit in marigold cultivation in Raipur district

The overall per hectare gross profits from marigold cultivation were computed using the market price of ₹1800.00 per quintal and total gross return from marigold was found to be ₹186006.80. The cost of production of marigold was found to be ₹99.12/qlt, ₹104.71/qlt, ₹108.25/qlt ₹115.56/qlt and

₹103.34/qlt, for marginal, small, medium, large and overall farms size, respectively. While overall input-output ratio and B: C ratio were found to be 1:3.20 and 1:2.20, On an overall basis Gross returns (total income) was observed to the ₹186006.80/ha, while net returns was found to be ₹127828.26/ha and overall production of marigold was 103.34 quintal /ha.

Table 2: Yield, value of output and cost of production of marigold in Raipur district

Particular	Marginal	Small	Medium	Large	Overall
A. Cost of cultivation (Rs/ha)	56435.15	58589.75	60411.14	63598.01	58178.54
B. Yield (qlt/ha)	99.12	104.71	108.25	115.56	103.34
C. Price (Rs/qlt)	1800.00	1800.00	1800.00	1800.00	810.00
D. Gross Income (Rs/ha)	178416.00	188478.00	194850.00	208008.00	186006.80
E. Net income (Rs/ha)	121980.85	129888.25	134438.86	144409.99	127828.26
F. Cost of production (Rs/qlt)	569.36	559.54	558.07	550.35	563.00
G. Input Output Ratio	1:3.16	1:3.22	1:3.23	1:3.27	1:3.20
H. B:C Ratio	1:2.16	1:2.22	1:2.23	1:2.27	1:2.20

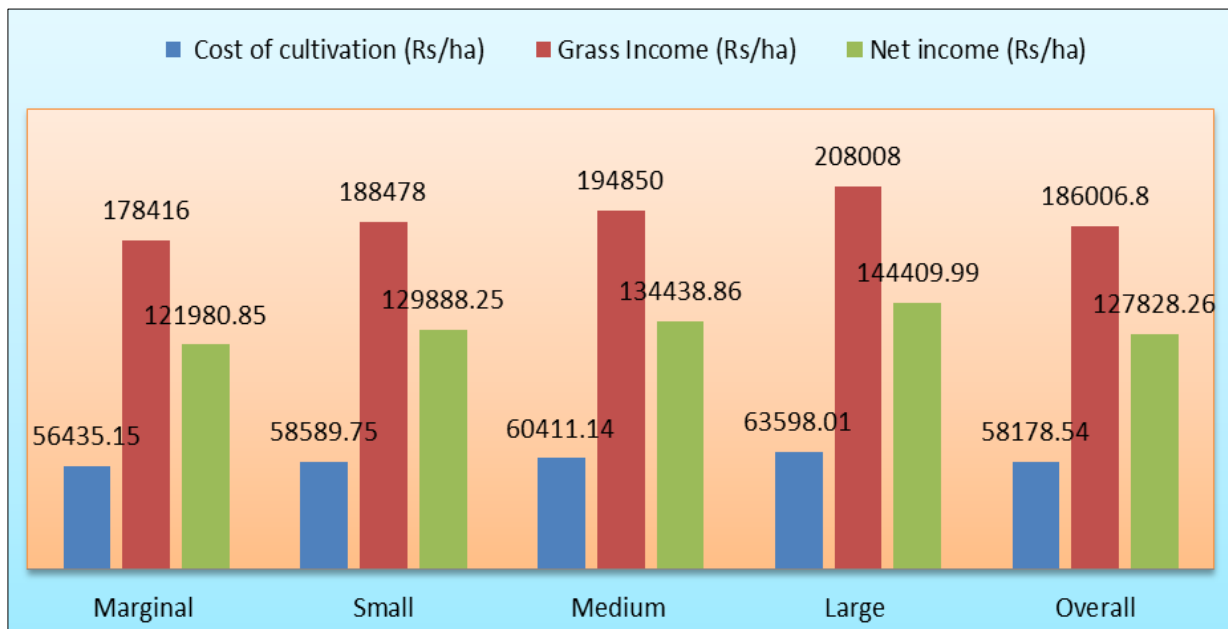


Fig 2: Overall farm profit in marigold cultivation in Raipur district

Cost obtained on the basis of different cost concept of marigold in Raipur District

Cost of cultivation of marigold of sample farms in the Raipur district has been worked out and presented in table 3. It is envisaged that Cost A₁ as designated as variable cost was found to be ₹32418.07/ha on an overall basis, which was added of rent paid for lease in land and Cost A₂, was found to be ₹32418.07/ha, indicates that the interest on fixed capital imputed with Cost B₁ was ₹34219.27/ha. Normally, farmers

are cultivating the crop in their own land but it has imputed rental value of land of ₹18000.00/ha notified Cost B₂ was ₹52219.27/ha. The Cost C₁ found to be ₹40556.63/ha, includes the value of Cost B₁ and imputed value of family labour was found to be ₹6337.36/ha, The Cost C₂, found to be ₹58556.63/ha, includes the value of Cost B₂ and imputed value of family labour and The Cost C₃, found to be ₹64412.29/ha, imputed value of managerial allowances at 10 per cent of Cost C₂.

Table 3: Break-up of total cost obtained over different cost, (Rs./ha.)

Cost/ Category	Marginal	Small	Medium	Large	Overall
Cost A ₁	28383.45	31263.33	37699.69	41146.59	32418.07
Cost A ₂	28383.45	31263.33	37699.69	41146.59	32418.07
Cost B ₁	30184.65	33064.53	39500.89	42947.79	34219.27
Cost B ₂	48184.65	51064.53	57500.89	60947.79	52219.27
Cost C ₁	38435.15	40589.75	42411.14	45598.01	40556.63
Cost C ₂	56435.15	58589.75	60411.14	63598.01	58556.63
Cost C ₃	62078.67	64448.72	66452.26	69957.81	64412.29

Returns obtained over different cost of marigold in Raipur District

Table 4 shows that the overall returns over Cost A₁, Cost A₂, Cost B₁, Cost B₂, Cost C₁, Cost C₂, and Cost C₃ was obtained

to be ₹153588.73/ha, ₹153588.73/ha, ₹151787.53/ha, ₹133787.53/ha, ₹145450.17/ha, ₹127450.17/ha and ₹121594.51/ha, respectively.

Table 4: Cost concept wise gross income over different cost in marigold (Rs/ha.)

Particulars	Marginal	Small	Medium	Large	Overall
Return over cost A ₁	150032.55	157214.67	157150.31	166861.41	153588.73
Return over cost A ₂	150032.55	157214.67	157150.31	166861.41	153588.73
Return over cost B ₁	148231.35	155413.47	155349.11	165060.21	151787.53
Return over cost B ₂	130231.35	137413.47	137349.11	147060.21	133787.53
Return over cost C ₁	139980.85	147888.25	152438.86	162409.99	145450.17
Return over cost C ₂	121980.85	129888.25	134438.86	144409.99	127450.17
Return over cost C ₃	116337.33	124029.28	128397.74	138050.19	121594.51

Suggestions for farmers

During the investigation it was realized that there is enormous possibility of marigold cultivation in Chhattisgarh state. The opinion and problem raised by the marigold farmers during the investigation should be taken into account and solved

thoroughly. In conclusion following steps should be initiated for enhancing the marketing of marigold.

1. In view of the production and marketing constraints regarding marigold growers Chhattisgarh horticulture department should encourage them through advanced training, demonstration, technical knowhow and provide

assured marketing by opening various marigold centers in different levels so that all the marigold growers must receive remunerative amount for their produce within the state.

2. Irrigation facilities are to be developed in the proper way so that farmers can adopt improved technologies with assured irrigation facilities.
3. Need of financing at reasonable interest rate marigold growers especially to small farms in marigold cultivation.
4. Need for the processing unit of the marigold region during peak season.
5. Marigold growing area should facilities of transportation from going on marigold market.
6. To improve the marigold marketing system an immediate step should be taken to regulate the market, which not only help in raising income of producers but also helps in providing greater satisfaction to the consumer and minimizing the price fluctuation.

References

1. Agricultural & Processed Food Products Export Development Authority (APEDA), https://www.apeda.gov.in/apedawebiste/subhead_products/floriculture.htm
2. Ashok D, RK Khatkar, Kumar A. Marketing costs and price spread for marigold flower in Haryana. *Agricultural Marketing*; c2005 Apr-Jun. p. 09-12. <https://raipur.gov.in/>
3. Kendirli B, B Cakmark. Economics of cut flower production in greenhouses: Case study from Turkey. *Agri. J.* 2007;2:499-502.
4. Kumar B.A Study on cost-benefit analysis of nursery raising of selected horticulture crops in Rajnandgaon district of Chhattisgarh, Indira Gandhi Krishivishwa-vidyalaya Raipur (C.G.); c2018. p. 15-24.
5. Kumar S. Cultivation and marketing of flowers in India, An Empirical Study, *International Journal of Research in Social Sciences.* 2017;7(2):224-271.
6. Shrey R, Acharya GK, Dhurwey CK. Economic Impact of Mahua (*Madhuca* spp.) on Tribal Livelihood and It's Marketing In Chhattisgarh State *Int. J Curr. Microbiol. App. Sci.* 2018;7:3595-3601.
7. Mukharjee AK, BK Banarjee. Prospects of Tuberose cultivation in West Bengal a case study, *Journal of Inter Academic.* 2003 Jan;3:328-333.
8. Satpute TG, SZ Khadase, VV Zagade. Economic Analysis of Rose Marketing in Ahmednagar District of Maharashtra State. *Agricultural Marketing*; c2006. p. 1-3.
9. Tripathy A. Indian Floriculture Industry: An Overview. *Kurukshetra.* 2012 Jul;60(9):52.
10. Usman M, Ashfaq M, Taj S, Abid M. An economic analysis of cut-rose flower in Punjab, Pakistan, *J Anim. Plant Sci.* 2014;24(2):651.
11. Verma LK, Nag NK, Solanki A, Singh P. SSRG *International Journal of Agriculture & Environmental Science (SSRG-IJAES).* 2019 Jul-Aug;6:4.