Original Research Article

Estimation of Marigold Resource Use Efficiency and Cost and Returns Per Ha in Raipur District, Chhattisgarh

Abstract

"Economic analysis of production and marketing of marigold in Raipur, Chhattisgarh" is the topic of the current study. The sample was chosen using a multistage random sampling design. The Raipur district's 1 Block, 5 Villages, and 80 marigold producers were all included in the study. By using the personal interview method, the main statistics for the season of 2023 were gathered. Different secondary sources were used to gather information on the region, production, and productivity. Tabular analysis was heavily used to achieve the study's numerous goals. The study's key findings showed that marigold production costs per quintal and cost of cultivation per hectare were respectively Rs. 68874.54 and Rs. 1003.16. There was a total net profit of Rs. 130258.8 per hectare. The return on investment was 1.89 rupees.Farmers' responses to the problems with marigold production, such as the high cost of fertilizers and pesticides, a lack of labor, and pest and disease attacks.

Keywords: Cost of cultivation, cost concepts, gross returns, benefit-cost ratio

Introduction

India's third most common flower after roses and chrysanthemums is the marigold, which is a member of the Asteraceae family. It is an American native. Marigold is a high-value crop that requires a lot of labor and is grown on a modest scale by the majority of farmers. Knowing how much it will cost to grow marigolds and how much it will yield will help farmers plan their operations and allocate their resources profitably. The farmer's primary source of income is the proceeds from growing marigolds. The farmers in this region have been growing marigolds for more than 10 years, but in the beginning, they only used the traditional method, and they also don't have adequate knowledge of the new, more sophisticated method. They encountered the issue of decreased marigold output as a result of their ignorance of and disregard for contemporary management techniques and ineffective and discriminatory use of inputs. Not only are marigolds grown for their beauty as cut flowers and landscaping plants, but they are also grown for their natural carotenoid pigment, which is used in chicken feed. In Chhattisgarh, the area planted with marigolds grew during the years 2020–2021 and 2021–2022 from 5072 ha to 5092 ha (anonymous NHM Chhattisgarh database). The state of Chhattisgarh occupied a considerable area for the purpose of commercial flower growing. Most of the land is concentrated in and around cities and towns. In Raipur, Durg, and Bilaspur, flower growing is becoming more visible as a commercial crop. Due to its huge profits, floriculture has become one of the most lucrative business professions today. In India, there were roughly 322 thousand hectares under cultivation in 2020–2021, and 2980,000 metric tons of flowers were produced. According to a record maintained by the Agriculture Ministry, there were 28327 hectares of flower-producing land at that time, and 312823 metric tons of flower were produced.

Research Methodology

Sampling design:

The selection of the district as the first stage unit, the block as the second stage unit, the villages as the third stage units, and the farm holding as the final and ultimate stage units waswheredone using a multi-stage sampling design.

Selection of the districts:

The state is divided into 33 districts, and Raipur district was specifically chosen to be the focus of the current study's marigold research.

Selection of blocks:

There are 4 blocks in Raipur District. Out of them Abhanpur block was selected purposively for this study.

Selection of Villages

The relevant Gram Panchayat provided a complete list of all the villages, and 5% of them were randomly chosen. In order to choose the villages from these districts for the study, Raipur was randomly chosen as having Marigold. A list of villages that grow marigolds was created after getting in touch with the block development officer. based on the pre-prepared data regarding the chosen districts, blocks, villages, and respondents. The communities of Kanhera, Mundra, Tekari, Raweli, and Julum

Selection of Respondents/ Farmers:

Gram Pradhan provided a list of farmers who grow marigold in particular villages. Following that, these farmers were divided into groups according to farm size. Out of those, 10% of respondents were chosen at random for the study based on marigold cultivation. Farmers were divided into threefivegroups based on the size of their holdings, i.e.

SR. NO.	CATEGORY	SIZE – CLASSWrite in bold
1	Marginal	Below 1.00 hectare
2	Small	1.00-2.00 hectare
3	Semi medium	2.00-4.00 hectare
4	Medium	4.00-10.00 hectare
5	Large	10.00 hectare & above

(https://www.pib.gov.in)

From this list 80 respondents were selected randomly through proportionate allocation to the population.

Analysis of data/ analytical tools used

The main data were assembled and analyzed to determine the cost of production and marketing of marigold. The secondary data from a chosen district were analyzed to get estimates of growth rates in area, production, and productivity of marigold.

Analytical techniques employed

For achieving the stated objectives, following analytical procedure was adopted**:-**

Cost of cultivation

The information on the cost of growing the marigold crop is information that is frequently used in farm management studies. Agricultural economists who were utilized to analyze the data determined the various cost concepts as follows:

The cost concepts Cost-A1, Cost-A2, Cost-B1, Cost-B2, Cost-C1 and Cost-C2 were used to calculate the production and marketing economics.

Cost-A1 = includes value of hired labor, value of owned bullock labor, value of hired bullock labor, value of owned machinery, value of hired machinery charges, value of fertilizer, value of owned and purchased manure, value of farm-produced and purchased seed, value of insecticides and pesticides, value of irrigation charges, value of canal water charges, land revenue, value of other taxes, depreciation of farm implements, farm buildings, farm machinery and irrigation systems. Cost-A2 = Cost-A1 + the rent for the land that was rented. Cost B1 = Cost A2 + interest on fixed capital (not including land).

Cost-B2 = Cost-B1 + Rent for leased land + Rental value of owned land.

Cost-C1 = Cost-B1 + the labor value attributable to the family. Cost-C2 = Cost-C1 + a managerial cost of 10% of Cost-C1. (Note: Cost-A = Cost-A1 + Cost-A2, and Cost-B = Cost-B1 + Cost-B2)

Cost concept

The wages of hired human labor were determined using the local average hourly rates for male and female labor. Calculated at the going rate in the relevant localities were the costs of bullock labor, both owned and hired. If a product was purchased, the real price paid was taken into account for FYM.

Chemicals for plant protection and fertilizer were valued at the prices that farmers actually paid for them.

Income measure

Following income measure will be used.

1. Gross income: It is the total value of main product and by- product.

GI = (Q_m x P_m) + (Q_bx P_b) Where, GI = Gross Income.
Qm = Quantity of main product. Pm = Price of main product.
Qb = Quantity of by-product. Pb = Price of by-product.

2. Return over variable cost (RVC) = Gross income – Cost- A1.

3. Farm business income (FBI) = Gross income – Cost- A2.

4. Family labour income (FLI) = Gross income – Cost- B2.

5. Net income: This was defined as the difference between gross income and total cost incurred by the farmers.

(NI = Gross income - Cost C2)

Results and Discussion

The farm is the most crucial research component at the moment. The farm is typically thought of as a socioeconomic entity that supports the farmer's life and livelihood. It is the land that a farmer or group of farmers cultivate. As a matter of fact, the resource, i.e. land, labor, capital, and management control the farm business, the farming that is practiced in the tract depends greatly on the regional conditions, type of soil, irrigation facilities, and technical expertise of the farming family. Table 1. details the marigold crop's economics. It unmistakably demonstrates the cost of marigold seed production per hectare of cultivation. Overall, the cost of growing one hectare of marigolds was marginally 70137.65 rupees, little 69045.25 rupees, medium 67440.73 rupees, and overall 68874.54 rupees.

Table 1.: Cost per input for the production of marigold flowers. (Rs/ha)Write in bold

SR. NO.	PARTICULARS		UNITS	Marginal	Small	Medium	Overall
1	Hired Human Labour	Male	DAY	10267.2	5148.95	7507.04	7641.06
		Female	DAY	4444.44	6250.50	4598.59	5097.84
		Total	**DAY**	**14711.6**	**11399.4**	**12105.6**	**12738.9**
2	Bullock Labour	Hired	DAY	1489.41	1567.42	1653.73	1570.18
		Owned	DAY	510.58	3187.50	850.98	1516.35
		Total	**DAY**	**1999.99**	**4754.92**	**2504.71**	**3086.54**
3	Machine	Hired	Hrs	2867.73	2687.00	0.00	1851.57
		Owned	Hrs	0.00	0.00	2690.14	896.713
		Total	**DAY**	**2867.73**	**2687.00**	**2690.14**	**2748.29**
4	Seed		KGS.	972.80	950.00	870.00	930.933
5	Manure		QTL	5481.48	5510.59	5429.57	5473.88
6	Fertilizer	N	KGS.	1917.98	1879.95	1875.84	1891.25
		P	KGS.	454.03	478.24	442.67	458.313
		K	KGS.	912.93	775.13	909.48	865.846
		Total		**3284.94**	**3133.32**	**3228.00**	**3215.42**
7	Irrigation	Cost	RS.	2800.00	2000.00	2300.00	2366.66
8	Plant protection	Cost	RS.	697.04	612.50	712.32	673.953
9	Miscellaneous	Cost	RS.	728.89	404.21	938.96	690.686
10	Int. On Working Capital	Cost	RS.	962.17	984.55	900.28	949
11	**COST "A"**		**RS.**	**34506.6**	**32436.5**	**31679.6**	**32874.2**
12	Rental Value Of Land		RS.	30000.0	30000.0	30000.0	30000
13	Int. On Fixed Capital		RS.	1000.00	1000.00	1000.00	1000
14	Depreciation On Fixed	Cost	RS.	2200.00	2200.00	2200.00	2200.00
15	Land Revenue	Cost	RS.	158.97	158.71	158.67	158.783
16	**COST "B"**		**RS.**	**67865.6**	**65795.2**	**65038.2**	**66233.0**
17	Family Human Labour	Male	DAY	1748.00	2050.00	1494.00	1764
		Female	DAY	524.00	1200.00	908.45	877.483
		Total	**DAY**	**2272.00**	**3250.00**	**2402.45**	**2641.48**

18	**COST"C"**		**RS.**	**70137.65**	**69045.25**	**67440.73**	**68874.54**

1. Cost concept at sample households

Table .2 details the costs and profits related to the manufacture of Marigold using the cost concept. Overall Cost-A1& Cost-A2, Cost-B, and Cost-C for marigold on the sample farms were Rs. 32874.28 per ha., Rs. 32874.28 per ha., Rs. 66233.06 per ha., and Rs. 68874.54 per ha., respectively. Marginal farms had the highest costs overall, followed by small and medium farms.

Table: 2: Cost on the basis of cost concept at sample households (Rs./ha.)Write in bold

		Farm size			
S.No.	**Particulars**	**Marginal**	**Small**	**Medium**	**Overall**
1.	Cost A1	34506.68	32436.54	31679.61	32874.28
2.	Cost A2	34506.68	32436.54	31679.61	32874.28
3.	Cost B	67865.65	65795.25	65038.28	66233.06
4.	Cost C	70137.65	69045.25	67440.73	68874.54

2. Yield, cost and return of Marigold at the sampled farms

Table .3 shows the yield, output value per hectare, and production cost per quintal of marigold on the study farms. It shows that the sample farms' average marigold production per hectare was 68.66 quintal. Rs. 68874.54 was the total cost of agriculture per hectare. The gross return was 199133.3 and the net return was Rs. 130258.8.

Table: 3: Yield, cost and return of Marigold on the sample farm (Rs./ha.)Write in bold

		Farm size			
Sr.No.	**Particulars**	**Marginal**	**Small**	**Medium**	**Overall**
1.	Average yield	68.00	69.00	69.00	68.66667
2.	Cost OfofProduction Per Qtl	1031.43	1000.65	977.40	1003.16
3.	Cost OfofCultivation	70137.65	69045.25	67440.73	68874.54
4.	Gross Return	197200	200100	200100	199133.3
5.	Net Income	127062.35	131054.75	132659.27	130258.8
6.	Family labor Income	129334.35	134304.75	135061.72	132900.3
7.	Farm business income	162693.32	167663.46	168420.39	166259.1
8.	Farm investment income	160421.32	164413.46	166017.94	163617.53
6.	Input – Output Ratio	1:2.81	1:2.89	1:2.97	1:2.89

3. Income over different cost at sampled farms

The incomes over different costs were also worked out (Table 4). The overall per hectare income over Cost-A, Cost-B,and Cost-C calculated was Rs. 166259.1, Rs. 132900.3and Rs.130258.8 respectively.

Table .4: Income over different cost at sampled farms (Rs./ha.)Write in bold

Income over Different Cost	**Size group**			
	Marginal	**Small**	**Medium**	**Overall**
Cost "A"	162693.32	167663.46	168420.39	166259.1
Cost "B"	129334.35	134304.75	135061.72	132900.3
Cost "C"	127062.35	131054.75	132659.27	130258.8

Resource use efficiency part is missing as mentioned in title of research paper. So add it.

Conclusions :

In conclusion, the analysis of Marigold production on the sample farm reveals several key findings. The per hectare cost of cultivation of marginal group farmers at cost ‘A’, cost 'B' and cost ‘C was Rs 34506.68 , Rs 67865.65 and 70137.65, respectively. The per hectare cost of cultivation of small group farmers at cost A', cost B' and cost ‘C was Rs. 32436.54, Rs. 65795.25 and Rs. 69045.25, respectively. The per hectare cost of cultivation of medium group farmers at cost 'A', cost 'B' and cost 'C was Rs. 31679.61, Rs.65038.28 and Rs.67440.73, respectively. The per hectare cost of cultivation

in overall level, at cost 'A' , cost 'B' and cost 'C 'was Rs. 32874.28 , Rs.66233.06 and Rs.68874.54, respectively. At overall level, average gross return worked out to Rs. 199133.3.. In marginal size group average gross return was Rs. 197200.00. In small size group average gross return was Rs. 200100.00 In medium size group average gross return was Rs.200100.00.The highest input-output ratio at cost 'C was recorded in medium size group i.e. 1:2.97 and lowest input-output ratio at cost 'C in marginal size group i.e. 1:2.81. At overall input-output ratio at cost 'C was 1:2.89.Farmers can use this information to make informed decisions regarding their production strategies and maximize their profitability.

References :Add 3-4 current references. Maintain uniformity while writing references.

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