

Research Paper

# Profitability of Hybrid Marigold Flower Cultivation in Madhya Pradesh: An Assessment

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Received: 17-09-2021

Revised: 25-12-2021

Accepted: 27-01-2022

## ABSTRACT

Marigold flower, the most important commercial flower in India and Madhya Pradesh is one of the highest marigold flowers producing state. This study was carried out to estimate the cost and returns of hybrid marigold flower cultivation using primary data collected during the year of 2017-18 from 120 growers selected from Ratlam and Indore districts of Madhya Pradesh. The operating expenses incurred during production of hybrid variety of marigold i.e. cost A1 was assessed to be ₹ 79252, ₹ 88026 and ₹ 84627 per ha for small, medium and large size growers, respectively. Considering all direct and indirect expenses, i.e. cost C3 was estimated to be ₹ 160331, ₹ 174817 and ₹ 173763 per ha for three categories. It was found that the highest net income ₹ 150911 per ha was received by medium size growers for hybrid variety followed by large growers (₹ 136103/ha) and small growers (₹ 134965/ha). When benefit-cost ratio was calculated, it was found to be higher than unity for all the three categories of marigold growers, viz. small (1.84) medium (1.86) and large (1.78). So, it is established that hybrid variety of marigold flower had wide scope to increase the area & production in Madhya Pradesh, as long as market supports.

## HIGHLIGHTS

- ① Marigold flower growers spent about ₹ 169638 per ha and earned ₹ 1.34 to 1.5 lakhs in a year, as income over all the expenses, including worthiness of the enterprise.
- ② The higher net income was received by medium size group of marigold growers followed by large and small growers.

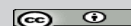
**Keywords:** Farm profitability, hybrid marigold, Madhya Pradesh

Being a seasonal flower, Marigold can be grown round the year. It becomes popular among vendors, gardeners and dealers for its simple cultivation and wide versatility. Marigold is a very high value cash crop and more profitable than tradition crop to the farmer (Malik, 2021). From medicinal purpose not only flowers but leaves are also significant. Even the flower of marigold finds its value in perfume industry. Marigolds are primarily perfect for cut flowers, particularly for garland making (Kolambkar, 2013). The cultivation of seedling plot

of marigold by marginal farmers as well as large farmers for commercial purpose is a good source of income. For perfume industry, garlands and garden display marigold plant holds an important place (Gupta, 2018). For natural colour extraction marigold is considered as one such potential flower

**How to cite this article:** Raut, Y., Bhandari, V. and Singh, T. (2022). Profitability of Hybrid Marigold Flower Cultivation in Madhya Pradesh: An Assessment. *Economic Affairs*, 67(01 Spl.): 87-91.

**Source of Support:** None; **Conflict of Interest:** None



crop. It is a natural carotenoid pigment for poultry feed apart from its production as ornamental cut flowers and landscape plant (Kolambkar, 2014). By taking all this into consideration Government of India has accorded floriculture a 100% export oriented status and has also recognized it as a rising industry. Thus due to consistent expansion in demand of flower, floriculture has developed as an important commercial trade in Horticulture (Sai, 2018). Flowers are very intimately associated with the social and religious activities in India (Verma, 2013). Due to enhanced demand of the loose flower, bouquet, garland and wreath, the cultivation of flowers now-a-days is a prospective enterprise in Indian economy. As the floriculture business is comparatively new sector, literature on production practices and technologies though available, profitability analysis comprising cost of production and returns from hybrid marigold flower cultivation are not available. Therefore, it was inevitable to do a sincere attempt for analysing the profitability of hybrid marigold flower cultivation in Madhya Pradesh.

**Hypothesis:** There is no significant difference among the small, medium and large famers in their total cost per ha for hybrid marigold cultivation

## MATERIALS AND METHODS

**Selection of area:** Several districts of Madhya Pradesh state is bestowed with raised production of marigold flowers for commercial purpose. Ratlam and Indore districts were selected for the study as they cover the maximum area i.e.40 percent of marigold flower cultivation to total arablearea in the state. Ratlam district consist of six blocks and Indore district consist of five blocks. Out of which one block from each district (of same name) was selected again on the basis of maximum area under this flower. With the help and support of block officials, a list of villages growing marigold flower were prepared and from the list, cluster of 10 villages were selected on the basis of higher area under marigold flower. In Ratlam block also cluster of 10 villages namely: Titari, Badodiya, Nalkuyi, Alniya, Dholka, Rupakheda, Ratanagarh, Simlawada, Piplodi and Sagod were selected and from Indore block 10 villages namely: Asrawad, Devgudadiya, Dudhiya, Jambudi, Kanadiya, Kilod, Mirzapur, Nainod, Ralamandal and Umariya were selected.

Now, in a cluster of 10 villages, all marigold flower growers were listed and categorised into three size groups based on the size of land holding i.e. small (up to 2.0 ha.), medium (2.1 to 4.0 ha) and large size (above 4.0 ha). From each size group, 40 marigold flower growers were selected randomly and in total, 120 sample growers were considered for detail investigation.

**Data Collection:** Primary data was collected from selected respondents using a pre-tested interview schedule by the personal interview pertaining to Agricultural year 2017-18. Data on farmer's demographic characteristics including family details, economic activities. Details of entire farm activities including land holding, other crop and input-output pattern in marigold cultivation

**Estimation of farm profitability:** To examine the farm profitability aspects of hybrid marigold flower, modern cost-concepts and returns calculation were used as under.

### Cost Concepts

Cost  $A_1$  = All actual expenses incurred in the production of marigold flower by producer

- ♦ Value of hired human labour
- ♦ Value of owned and hired bullock labour
- ♦ Value of owned and hired machine labour
- ♦ Value of seed/plants
- ♦ Irrigation charges
- ♦ Value of insecticide & pesticide
- ♦ Value of manure & fertilizer
- ♦ Depreciation on implement & farm building
- ♦ Land revenue & other taxes
- ♦ Interest on working capital

Cost  $A_2$  = Cost  $A_1$  + Rent paid for leased in land

Cost  $B_1$  = Cost  $A_2$  + Interest on fixed capital excluding land

Cost  $B_2$  = Cost  $B_1$  + Rental value of owned land

Cost  $C_1$  = Cost  $B_1$  + Imputed value of family labour

Cost  $C_2$  = Cost  $B_2$  + Imputed value of family labour

Cost  $C_3$  = Cost  $C_2$  + 10 per cent of Cost  $C_2$  as managerial cost

## Returns concepts

- ♦ **Gross Income:** Quantity of marigold flower × price/ unit
- ♦ **Farm Business Income:** Gross income – Cost 'A<sub>1</sub>'
- ♦ **Family labour Income:** Gross income- Cost 'B<sub>2</sub>'
- ♦ **Net Farm Income:** Gross income – Cost 'C<sub>3</sub>'
- ♦ **Net Income over Cost A<sub>2</sub>:** Gross income – (Cost 'A<sub>2</sub>' + imputed value of family labour)
- ♦ **Benefit-Cost Ratio:** Gross income / Total expenses (Cost C<sub>3</sub>)

**One-way analysis of covariance (ANOVA):** ANOVA explored the difference in the mean values for various sub groups.

## RESULTS AND DISCUSSION

The cost of cultivation of hybrid marigold flower is presented in Table 1. The operating expenses

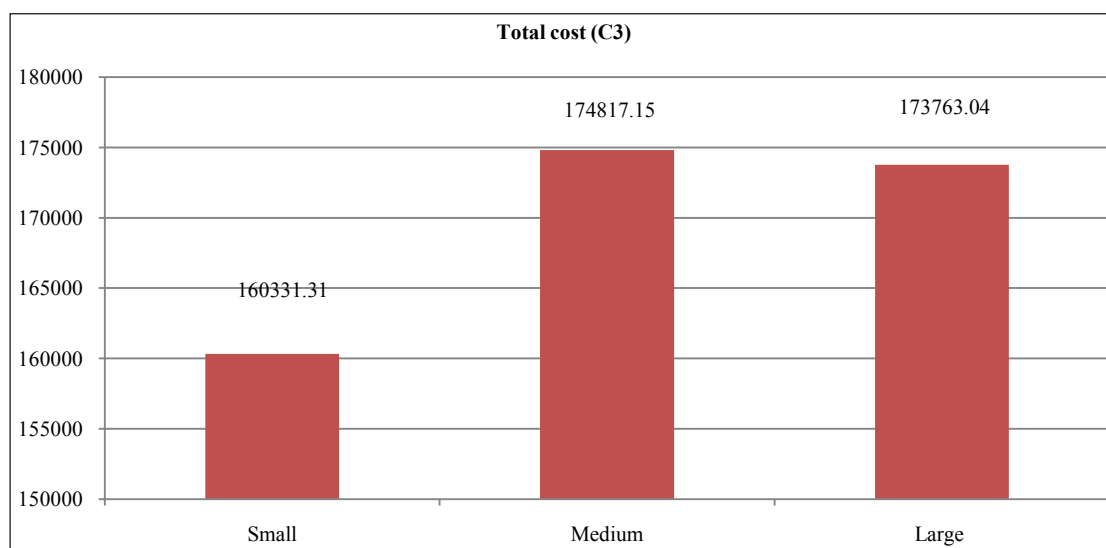
incurred during production of hybrid variety of marigold i.e. cost A<sub>1</sub> was estimated to be ₹ 79252, ₹ 88026 and ₹ 84627 for small, medium and large growers, respectively. The average share of cost A<sub>1</sub> to cost C<sub>3</sub> was 49 percent, which includes the cost of seed, manure and fertilizer, insecticide, pesticide and irrigation charges and it does not vary much among the category of marigold growers. The total cost i.e. cost C<sub>3</sub> was estimated to be ₹ 160331, ₹ 174817 and ₹ 173763 for different size groups. All the cost was comparatively higher at medium followed by large and small size group.

A one-way ANOVA was conducted to evaluate the significant difference in mean value among the small, medium and large farmers in their total cost per ha for hybrid marigold cultivation. The value of F<sub>cal</sub> was observed 64.8 at 0.05 level of significance. The value of F<sub>cal</sub> was found greater than F<sub>tab</sub>. The result of ANOVA allowed rejecting the null hypothesis and supporting the conclusion that there

**Table 1:** Cost of cultivation of hybrid marigold flower (₹/ha)

Sl. No.	Cost	Size Groups			
		Small	Medium	Large	Average
1	Cost A <sub>1</sub>	79252.25 (49.43)	88025.59 (50.35)	84627.4 (48.70)	83968.41 (49.49)
2	Cost B <sub>1</sub>	101434.75	113858.69	112950.4	109414.61
3	Cost B <sub>2</sub>	142700.75	155936.69	155127.4	151254.97
4	Cost C <sub>1</sub>	104489.75	116846.69	115789.4	112375.28
5	Cost C <sub>2</sub>	145755.75	158924.69	157966.4	154215.61
6	Cost C <sub>3</sub>	160331.31 (100)	174817.15 (100)	173763.04 (100)	169637.5 (100)

Figures in brackets shows the percentage to total cost i.e. C<sub>3</sub>.



**Fig. 1:** Size group wise total cost (₹/ha)

**Table 2:** Picking wise gross income of hybrid marigold flower production

Number of picking	Category of growers								
	Small			Medium			Large		
	Production (q/ha.)	Price (₹/q)	Total Value (₹)	Production (q/ha.)	Price (₹/q)	Total Value (₹)	Production (q/ha.)	Price (₹/q)	Total Value (₹)
1 <sup>st</sup> picking	57	2000	114000	62.33	2000	124660	60.4	2000	120800
2 <sup>nd</sup> picking	55.47	1800	99846	61.78	1800	111204	58.37	1800	105066
3 <sup>rd</sup> picking	54.3	1500	81450	59.91	1500	89865	56	1500	84000
<b>Gross income (₹/ha)</b>	<b>295296</b>			<b>325729</b>			<b>309866</b>		

**Table 3:** Profitability of hybrid marigold flower

Size Group	Gross Income (₹/ha)	Gross Expenses (₹/ha)	Net Income (₹/ha)	Family Labour Income (₹/ha)	Farm Business Income (₹/ha)	Net income over the cost A <sub>2</sub>	Cost of Production (₹/q)	BC Ratio
Small	295296 (100)	160331.32	134964.68 (45.70)	152595.25	216043.75	212988.75	961.3	1.84
Medium	325729 (100)	174817.15	150911.85 (46.33)	169792.31	237703.41	234715.41	949.9	1.86
Large	309866 (100)	173763.04	136102.96 (43.92)	154738.6	225238.6	222399.6	994.23	1.78

Figures in brackets shows the percentage to gross income.

was statistically significant difference in mean value among the small, medium and large farmers in their total cost per ha for hybrid marigold cultivation.

Generally, three picking are required in different period for hybrid marigold flower production. The level of production and the price are required for estimation of gross income and the picking wise gross income of hybrid marigold flower production is given in the Table 2. The price of hybrid variety of marigold generally remains more than local variety. Further, the marigold flower fetches more price in 1<sup>st</sup> picking period than the 2<sup>nd</sup> and 3<sup>rd</sup> picking period. The price during 1<sup>st</sup> picking period was ₹ 2000 per quintal, which got slashed by 10 per cent to ₹ 1800 during 2<sup>nd</sup> picking and further slashed by 12 percent to ₹ 1500 per quintal during 3<sup>rd</sup> picking. The gross income decreases as the picking period increases in hybrid variety for all the size groups due to variation in level of production as well as the price per unit hybrid marigold flower.

Profit over various types of costs has been presented in Table 3 and observed that the highest net income was received by medium size growers (₹ 150911/ ha) followed by large size growers (₹ 136102/ ha) and small size growers (₹ 134965/ ha). Similarly trend was observed when family labour income,

farm business income as well as income over the cost A<sub>2</sub> were calculated. As far as benefit cost ration is concerned, it was found 1.84, 1.86 and 1.78 for small, medium and large size groups, respectively.

## CONCLUSION

The total cost of marigold production was estimated to be ₹ 160331, ₹ 174817 and ₹ 173763 for small, medium and large size groups, respectively. Overall picking wise total production was observed to be 179.73, 175.62 and 170.21 quintal per ha for 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> picking respectively under hybrid variety. As far as profitability is concerned, marigold growers earned a net income by ₹ 1.50 lakhs, ₹ 1.36 lakhs and 1.34 lakhs per ha per year, which is substantial in comparison to enterprises. So, promotional policies must be looked into for further development of flower production and spared to suitable areas for increasing farmers income.

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