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DIVERSIFICATION AND SUSTAINABLE HILL AGRICULTURE DEVELOPMENT: AN ECONOMIC ANALYSIS OF MARIGOLD CULTIVATION IN JAMMU DISTRICT OF J&K STATE

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An investigation entitled "Diversification and Sustainable Hill Agriculture Development: An Economic Analysis of Marigold Cultivation in Jammu District of J&K State" was

conducted in Akhnoor block of Jammu district the agricultural year 2011-12 where Marigold was cultivated predominantly during. From the said development block, four villages were selected randomly. Further, from each village, 15 farmers were selected randomly, so as to constitute a total sample size of 60 farm households cultivating Marigold. The farms were categorized into two categories on the basis of owned holdings viz, marginal (up to 1 ha.) and small farms (above 1 ha. and below 2 ha.). Primary data on costs & returns of the crop were collected by interviewing the farmers through personal visits with the help of an especially structured and pretested schedule. The per hectare total costs of cultivation (Cost C2) of Marigold was worked out to be at Rs. 145175.89 and Rs. 148972.10 in case of marginal and small farms, respectively, with an overall average of Rs. 146634.35 on all the farms taken together. Whereas, the respective Cost A1, Cost A2, Cost B1, Cost B2 and Cost C1 were found to be at Rs. 46511.19, Rs. 59511.19, Rs. 51580.89, Rs. 133955.89 & Rs. 62800.89 in case of marginal farms and Rs. 48099.86, Rs. 57099.86, Rs. 53371.27, Rs. 138392.10 & Rs. 63951.27 for small farms. The per hectare returns of Marigold were Rs. 562500 and Rs. 556250 on marginal and small farms respectively with an overall average of Rs. 560000/ha on all the farms taken together. The benefit cost ratio on the total cost of cultivation was found highest in the case of marginal farms (3.87) followed by and small farms (3.78) resulting in an overall average of 3.82 on all the sample farms, thereby reflecting that Marigold cultivation was a remunerative enterprise in the hills.

Cost Concepts, Item wise cost, Cost structure, Gross Returns, C-B

into two categories on the basis of owned holdings viz, marginal (upto 1 ha.) and small (between 1 & 2 ha.). Then a sample of 60 farmers was selected randomly. Required data from sample farmers were collected through a pretested schedule and questionnaires by personal interview method. Tabular analysis has been used to obtain the result of the study. The reference year of the study was agricultural year 2011-12. The following cost concepts were used:

Cost A1 = Expenditure on casual labour, bullock labour, farm machinery, seeds, fertiliser and manure, plant protection chemicals, irrigation, miscellaneous expenditure (cost of transportation, baskets and ropes) and interest on working capital + depreciation + land revenue.

Cost A2 = Cost A1 + rent paid for leased-in land.

Cost B1 = Cost A1 + interest on value of owned fixed capital excluding land.

Cost B2 = Cost B1 + rental value on owned land + rent paid for leased-in land.

Cost C1 = Cost B1 + imputed value of family labour.

Cost C2 = Cost B2 + imputed value of family labour.

RESULTS AND DISCUSSION

i). The item wise break-up of cost of cultivation:

The item wise break-up of cost of cultivation were presented in Table 1 which showed that the per hectare cost of cultivation of marigold was Rs. 145175.89 on marginal farms, Rs. 148972.10 on small farms and Rs. 146634.35 on overall farms. The Total variable cost was worked out to be standing at Rs. 55611.19, Rs. 55843.86 and Rs. 55644.24 on marginal, small and overall farms respectively. Expenditures on human labour, machine labour, manure & fertilizer, irrigation, seed and plant protection chemicals were the important components of Total variable cost. The expenditure incurred on the human labour was the highest and the expenditure on human labour (casual and family labour) used for performing the operation like transplanting, weeding and harvesting was found out to be Rs.

مقدمة

INTRODUCTION

The demand for flowers is increasing tremendously with the changing scenario of progressive economy, changing life style and changes in social values of people of the country. Man's love and demand for flowers and floricultural products at national & international level, is the driving force for floricultural industry to become one of the most expanding & dynamic enterprise in today's world. Over the past decade, flower and pot plant business in the world has increased to 40 billion dollars. The annual rate of growth in the floriculture industry is about 15 percent. Floricultural products include cut flowers, which contribute about 60 percent of the global trade, flowering and green potted plants and bedding plants from a small segment of the floricultural crop production worldwide. India's share in this global floriculture market is around 0.75 percent. Jammu & Kashmir, the most colourful state of India, is located 32.17' and 37.96' North latitude and 73-26' and 80-36' East longitude, falling in western Himalayan region of the country. The state is endowed with ample natural resources including soil, water diversity in topography, climatic conditions, and rich natural flora facilitating the cultivation of a wide range of flowers. There is an increasing demand of variety of marigold flowers by the visiting pilgrims (more than 4.2 millions) at Shri Mata Vaishno Devi Ji Shrine. Its total production is estimated at 600 to 700 quintals and unfilled demand of the state is of the order of 800 quintals. The marigold flowers are exported during the month of October to November from the state to the other parts of the country like Delhi etc. Moreover, being a city of temples, the flower is also demanded for worship/puja purposes by certain communities of the population. With the above facts in mind, the present study was undertaken to estimate the costs and returns of Marigold cultivation in Jammu district of J&K state.

MATERIALS AND METHODS

The present study has been carried out in the Akhnoor development block of Jammu district of J&K state of India which has been chosen specifically because it covers a large chunk of area under its cultivation than other marigold grown area in the region. The primary data were collected from 4 villages (with 15 farms from each village) selected randomly from the said block. The farms were categorized

	charges		
1250.30	1258.25	1245.00	Miscellaneous Expenditure
3153.07	3160.97	3147.80	Interest on working capital
55644.24	55843.86	55611.19	Total variable cost
76020.83	69375.00	Rental value of owned land	Rental value of land
11400.00	9000.00	13000.00	Rent paid for leased-in land
83433.33	85020.83	82375.00	Total rental value of land
2256.40	2686.00	1970.00	Depreciation on implements and farm buildings
150.00	150.00	150.00	Land revenue
5150.38	5271.41	5069.70	Interest on fixed capital (excluding land)
90990.11	93128.24	89564.70	Total fixed cost
146634.35	148972.10	145175.89	Total cost (V.C.+ F.C.)

24744/ha. on the over- all farms. Similarly, rental value of land (rental value of owned land and rent paid for leased-in land), depreciation charges and interest on fixed capital were the major components of fixed costs, which accounted for Rs. 89564.70, Rs. 93128.24 and Rs.90990.11 for marginal, small and overall farms respectively. In case of fixed cost, the expenditure on rental value of land and interest on fixed capital (excluding land) were found highest on overall farms with their respective figures standing at Rs. 83433.33/ha and Rs. 5150.38/ha.

ii). Cost concept wise break-up of Cost of Cultivation:

The Cost-concept wise break-up of Cost of cultivation of Marigold crop were presented in Table Table 2 which indicated that the per hectare cost C2 of cultivation of marigold was Rs. 145175.89 on marginal farms and Rs. 148972.10 on small farms. The overall farms average cost C2 of cultivation was worked out to be Rs. 146634.38 per hectare. The Cost A1 (which constituted all direct costs) was Rs. 46511.19 and Rs. 48099.86 on marginal and small farms respectively. However, the average cost A1 on all the farms taken together stood at Rs. 47146.67/ha. The cost A2 constituted was Rs. 59511.19 and Rs. 57099.86 on marginal and small farms respectively. However, the all farms average cost A2 was Rs. 58546.67/ ha. The cost B1 constituted was Rs. 51580.89 and Rs.53371.27 of marginal and small farms respectively. However, the all farms average cost B1 was Rs. 52297.05/ha. The cost B2 constituted was Rs. 133955.89 and Rs. 138392.10 of marginal and small farms per hectare respectively. However, the all farms average cost B2 was Rs.135730.38 per hectare. The cost C1 constituted was Rs. 62800.89 and Rs. 63951.27 of marginal and small farms respectively. However, the all farms average cost C1 was Rs. 63201.05 per hectare.

iii). Cost and return structure of marigold production

The costs incurred and returns realized from different categories of farms were estimated and the results were presented in Table 3. The total cost constituted were highest Rs. 148972.10 and Rs. 145175.89 on small and marginal farms respectively. However, the total cost on all the farms was Rs. 146634.35 per hectare, of which the total variable cost was Rs. 55644.24/ha. and total fixed cost was Rs. 90990.11/ha. The gross returns were highest at Rs. 562500 on marginal farms followed by Rs.556250 on small farms. However, the all farms gross return was Rs. 560000/ha. The net return was highest in case of marginal farms (Rs. 417324.11) followed by small farms (Rs. 407277.90). However, on the all farms the net returns were Rs. 413365.65. The benefit cost ratio was highest in case of marginal farms (3.87) followed by on small farms (3.78). However, the overall ratio for all the farms as a whole was seen at 3.82.

Table-2: Per hectare cost of cultivation (cost concept-wise) of marigold on different sized farms (Rs./ha.)

	All Farms	Small	Marginal	Categories → Particulars ↓
13840.00	14260.00	13560.00	Casual Labour	Cost -A1
	4102.00	4120.00	4090.00	Farm Machinery
	5724.00	5760.00	5700.00	Seed
	7275.40	7290.26	7265.48	Manure & Fertilizer
	7650.85	7658.38	7645.83	Plant protection

Table-1: Item-wise break-up of cost of cultivation of Marigold (Rs./ha.) on different sized farms

All Farms	Small	Marginal	Items
14260.00	13560.00	Casual	
			Human labour
10904.00	10580.00	11220.00	Family
24744.00	24840.00	24780.00	Total human labour
4102.00	4120.00	4090.00	Machine labour
5724.00	5760.00	5700.00	Seed
7275.40	7290.26	7265.48	Manures & fertilizers
7650.85	7658.38	7645.83	Plant protection chemicals
1744.65	1756.00	1737.08	Irrigation

value of owned land	1140 0.00	9000. 00	1300 0.00	Rent paid for le- ased in land
	1357 30.38	1383 92.10	1339 55.89	Total Cost- B2
	5337 1.27	5158 0.89	Cost -B1	Cost C1
52297.05				
135730.38	1090 4.00	1058 0.00	1122 0.00	Fami- ly lab- our
	6320 1.05	6395 1.27	6280 0.89	Total Cost- C1
	1383 92.10	1339 55.89	Cost -B2	Cost -C2
	1090 4.00	1058 0.00	1122 0.00	Fami- ly lab- our
	1466 34.38	1489 72.10	1451 75.89	Total Cost -C2

chemicals	1744 65	1756. 00	1737. 08	Irriga- tion c- harge s
	1250. 30	1258. 25	1245. 00	Misc- ellan- eous expe- nditu- re
	3153. 07	3160. 97	3147. 80	Inter- est on w- orkin- g cap- ital
47146.67	2256. 40	2686. 00	1970. 00	Depr- eciati- on ch- arges
	150.0 0	150.0 0	150.0 0	Land reven- ue
	4714 6.67	4809 9.86	4651 1.19	Total Cost- A1
	4809 9.86	4651 1.19	Cost -A1	Cost -A2
47146.67	1140 0.00	9000. 00	1300 0.00	Rent paid for le- ased in land
	5854 6.67	5709 9.86	5951 1.19	Total Cost- A2
	4809 9.86	4651 1.19	Cost -A1	Cost -B1
52297.05	5150. 38	5271. 41	5069. 70	Inter- est on fixed capit- al (ex- cludi- ng land)
	5229 7.05	5337 1.27	5158 0.89	Total Cost- B1
	5337 1.27	5158 0.89	Cost -B1	Cost -B2
	7203 3.33	7602 0.83	6937 5.00	Rent al

Table- 4.3: Per hectare costs and returns of marigold on

(in Rs.) different sized farms				
All farms	Small	Margin al	Particu- lars	
Costs				1.
55644. 24	55843. 86	55611. 19	Total v- ariable cost	
90990. 11	93128. 24	89564. 70	Total fixed cost	
146634. .35	148972. .10	145175. .89	Total cost	
Return s				2.
224.00	222.50	225.00	Yield (in q.)	
560000. .00	556250. .00	562500. .00	Gross returns	
413365. .65	407277. .90	417324. .11	Net returns	
1 : 3.82	1 : 3.78	1 : 3.87	ost-BC enefit Ratio	33.

استنتاج

Economic Analysis of cost and returns of Marigold in Jammu

district of J&K state revealed that the per hectare total costs of cultivation (cost-C2) of Marigold worked out to be Rs. 145175.89 and Rs. 148972.10 in case of marginal and small farms, respectively, with an overall average farms of Rs. 146634.35 while as the respective cost A1, cost A2, cost B1, cost B2 and cost C1 were Rs. 46511.19, Rs. 59511.19, Rs. 51580.89, Rs. 133955.89 and Rs. 62800.89 in case of marginal farms and Rs. 48099.86, Rs.57099.86, Rs. 53371.27, Rs. 138392.10 and Rs. 63951.27 for small farms and on an average of overall farms were Rs.47146.67, Rs. 58546.67, Rs. 52297.05, Rs. 135730.38 and Rs.63201.05, respectively. The per hectare returns of Marigold were Rs. 562500 and Rs. 556250 for marginal and small farms with an average of overall farms was Rs. 560000/ha. The benefit cost ratio on the total cost of cultivation was highest on marginal farms followed by small farms with the respective figures standing at 3.87 and 3.78. The overall ratio for all the farms taken together as a whole was found to be at 3.82, thereby reflecting that Marigold cultivation was a remunerative enterprise in hill agriculture situations. Therefore, policies should be formulated towards diversification from less remunerative towards higher remunerative enterprises which would ultimately increase the livelihood security of the farmers as well as conserving the natural resources and providing labour work opportunities which would help that part of population also which is landless and depend on others for their livelihoods.

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