

## Original Research Article

### Economics of Production of Turmeric in Satara District (M.S.)

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#### ABSTRACT

##### Keywords

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Turmeric is an ancient and sacred spice of India known as 'Golden Spice of India'. This paper attempts to estimate the cost and economic returns of turmeric cultivation among three size categories (small, medium and large) of farmers in Satara district of Maharashtra, which is one of the turmeric growing regions in India. The results of the study showed that of all the size categories, the turmeric was economically beneficial crop.

#### Introduction

Turmeric is an aromatic medicinal plant also known as 'Indian saffron' which is an important commercial spice crop grown in India. It contains appreciable quantities of proteins (6.3%), lipids (5.1%), carbohydrates (69.4%) and fiber (2.6%). Turmeric is rich in minerals like phosphorus, calcium, iron and vitamin A. Curcumin is a bright yellow chemical produced by *Curcuma longa* plants. It is sold as an herbal supplement, cosmetics ingredient, food flavoring, and food coloring. Area under turmeric was 224 thousand ha and production was 1107 thousand MT during 2017-18 in India. In 2017-18 Maharashtra was having second rank (190.09) in turmeric production, while Telangana was first in area (50.15) and production (294.56) of turmeric. In Maharashtra, Satara having second rank with area 1452 ha, production 88150 MT and productivity 5.5 MT/ha.

#### Materials and Methods

A multistage sampling technique was used in this study for selection of turmeric cultivators. Western Maharashtra zone was purposively selected for the present study where there is more potential for turmeric production. Satara district was selected purposively as turmeric production is increasing in this district. Two tahsils namely, Wai and Satara having maximum area under turmeric were selected purposively. From each tahsil, six villages were selected randomly and from every selected village ten farmers were selected randomly. From each tahsil sixty turmeric cultivators were selected randomly. Thus the total sample consists of 120 turmeric cultivators which were analyzed to obtain appropriate results. The data for the present study were collected in the month of October 2019 pertained to the agriculture year 2018-19 from the selected turmeric growers.

## **Analytical tools**

The data were arranged in suitable tables and simple statistical tools such as averages, percentages, ratios were used for analysis. For estimating cost of production, standard cost concepts viz., cost-A, cost-B, cost-C were used.

## **Results and Discussions**

The group-wise detail information about per hectare input utilization for turmeric is presented in Table 1. It is seen from the Table 1. that per hectare hired human labour utilization was observed in small, medium and large group were 218.69, 317.76, 369.33 days, respectively, and at overall level it was 333.22 labour days. It is observed that the hired human labour utilization was highest in large group followed by medium and small size group. Per hectare utilization of machinery hours was found 51.24 hrs at overall level.

In large size group per hectare utilization of seed was highest i.e. 31.98 followed by medium and small farms, it was 30.54 quintal and 26.67 quintal per hectare respectively. At overall level it was 30.69 quintal per hectare. At overall level manure utilization was 15.66 ton per hectare and fertilizers utilization was 95.34 kg N, 185.62 kg P, 202.81 kg K, 25.43 kg micronutrients per hectare. At overall level plant protection chemicals utilization was 1.13 kg, 8.11 lit per hectare.

It was observed from the Table 2 that, total cost of cultivation (cost 'C') of turmeric was worked out to Rs.469552, Rs.510910 and Rs.525232 in small, medium and large group, respectively. At the overall level, it was

worked out to be Rs 509156. This indicated that, the cost of cultivation of turmeric showed an increasing trend with respect to size of farm. At overall level, maximum cost was incurred on rental value of land 20.63 per cent followed by cost of seed 17.48 per cent, cost of manures 12.30 per cent, rent of machine hrs. 10.61 per cent, hired labour 10.19 per cent, fertilizers 5.72 per cent, family labour 4.43 per cent and cost of plant protection 2.95 per cent, and cost of irrigation 0.76 per cent. Out of the total cost (cost 'C') 76 at overall level the share of input cost i.e. cost 'A' and cost 'B' was 66.04 per cent, and 92.68 per cent respectively.

It is seen from the Table 3. that, The net profit at cost 'C' was worked out to be Rs.61559, Rs.116015, Rs.133161 and Rs.121536 in small, medium, large and at overall level group respectively. The benefit-cost ratio on small, medium, large size farm and at overall level were worked out to 1.13, 1.23, 1.25, and 1.24 respectively.

In conclusion, per hectare total cost of cultivation of turmeric i.e. cost 'C' was highest in the large size group i.e. Rs.525232 Per hectare followed by medium size group Rs.510910 and small size group Rs.469552 respectively. At overall level the benefit cost ratio was 1.24. Per hectare average production of turmeric was found to be 94.07 q, 88.53 q, 77.78 and 89.51 q in large, medium, small and overall level group, respectively. The average yield and gross returns per hectare increased with the increase in size of farms. The benefit cost ratio of turmeric at cost 'C' was 1.25 in large group, 1.23 in medium group and 1.13 in small group. This indicates that, cultivation of turmeric crop was economically beneficial.

**Table.1** Per hectare physical input utilization

Sr. No.	Particulars	Unit	Small	Medium	Large	Overall
1	Hired labour					
	Male	days	29.90	35.95	38.81	35.90
	Female	days	188.88	281.80	330.52	297.31
	Total	days	218.79	317.76	369.33	333.22
2	Family labour					
	Male	days	127.96	63.12	35.79	53.18
	Female	days	104.45	61.68	33.45	49.50
	Total	days	232.40	124.81	69.24	102.69
3	Total labour					
	Male	days	157.86	99.08	74.60	89.09
	Female	days	293.33	343.49	363.97	346.82
	Total	days	451.19	442.57	438.57	435.91
4	Machine labour	hrs	56.52	51.11	53.07	51.24
5	Seed	qtl	26.67	30.54	31.98	30.69
6	Manures	tonnes	13.61	16.33	14.88	15.66
7	Fertilizers					
	N	kg	93.068	95.26	98.43	95.33
	P2O5	kg	186.22	187.09	188.80	185.62
	K2O	kg	200.35	206.87	210.88	202.81
	Other	kg	19.55	25.53	26.20	25.431
8	Plant protection chemicals	kg	1.11	1.14	1.14	1.13
		lit	4.66	4.46	4.72	4.51
9	Herbicides	lit	3	3.64	3.67	3.6
10	Yield	qtl	77.78	88.52	94.06	89.50

**Table.2** Per hectare cost of cultivation of turmeric

(Fig in ₹)

Sr. No.	Particulars	Small	Medium	Large	Overall
1	Hired labour				
	Male	8672.9 (1.85)	10644 (2.08)	11451 (2.18)	10592 (2.08)
	Female	26444 (5.63)	38889 (7.61)	46603 (8.87)	41326 (8.11)
	Total	35117 (7.48)	49532 (9.69)	58054 (11.05)	51918 (10.19)
2	Machine hrs.	54604 (11.62)	53809 (10.53)	55170 (10.50)	54028 (10.61)
3	Seed material	78111 (16.64)	89182 (17.45)	92752 (17.66)	89025 (17.48)
4	Manures	54444 (11.59)	65354 (12.79)	59529 (11.33)	62652 (12.30)
	Fertilizers				
	N	4020.40 (0.86)	3775.60 (0.74)	3697.10 (0.70)	3707.10 (0.73)
	P	9218.20 (1.96)	8981.30 (1.75)	8853.70 (1.68)	8841.20 (1.73)
	K	11786.00 (2.51)	11518 (2.25)	11275 (2.14)	11443 (2.24)
	Other	2868.90 (0.62)	4223 (0.82)	4374.60 (0.83)	5184.90 (1.02)
5	Plant protection chemicals	15544 (3.31)	15059 (2.94)	15404 (2.93)	15024 (2.95)
6	Irrigation charges	3777.80 (0.80)	3983.70 (0.78)	3914.30 (0.74)	3911.70 (0.76)
	Input cost	269492 (57.39)	305418 (59.78)	313023 (59.59)	305736 (60.04)
7	Land revenue & other cesses	36 (0.007)	57.29 (0.01)	94.04 (0.018)	62.25 (0.012)
8	Depreciation on machineries, implements & tools	4027 (0.86)	9755.30 (1.91)	22755 (4.33)	12110 (2.38)
9	Interest on working capital @ 6% of input cost	16170 (3.44)	18325 (3.58)	18781 (3.58)	18344 (3.61)
	Cost 'A'	289725 (61.76)	333555 (65.28)	354653 (67.52)	336252 (66.04)
10	Interest rate on fixed capital @ 10 per cent	26949 (5.70)	30542 (5.97)	31302 (5.96)	30574 (6.004)
11	Rental value of land	88483 (18.84)	104430 (20.44)	109639 (20.87)	105053 (20.63)
	Cost 'B'	405157 (86.30)	468528 (91.69)	495594 (94.35)	471879 (92.68)
12	Family labour				
	Male	37107 (7.90)	18684 (3.66)	10558 (2.02)	15690 (3.08)
	Female	14622 (3.11)	8512.60 (1.66)	4716.50 (0.89)	6881.1 (1.35)
	Total	51730 (11.01)	27196 (5.32)	15275 (2.91)	22571 (4.43)
13	Supervision charges	12665 (2.69)	15187 (2.99)	14363 (2.74)	14706 (2.89)
	Cost 'C'	469552 (100.00)	510910 (100.00)	525232 (100.00)	509156 (100.00)
15	Gross returns	531111	626926	658400	630691
16	Net returns	61559	116015	133168	121536

(Figures in parentheses indicate percentage to total cost)

**Table.3** Per hectare profitability of turmeric

Sr. No.	Particulars	Small	Medium	Large	Overall
1	Gross return	531111	626926	658400	630691
2	Total cost				
	a) Cost 'A'	289725	333555	354653	336252
	b) Cost 'B'	405157	468528	495594	471879
	c) Cost 'C'	469552	510910	525232	509156
3	Net return over				
	a) Cost 'A'	241386	293370	303747	294439
	b) Cost 'B'	125954	158398	162805	158812
	c) Cost 'C'	61559	116015	133168	121536
4	Benefit cost ratio				
	a) Cost 'A'	1.83	1.88	1.86	1.87
	b) Cost 'B'	1.31	1.34	1.33	1.34
	c) Cost 'C'	1.13	1.23	1.25	1.24

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