Original Research Article

Economics of Turmeric Production in Sangli District of Maharashtra, India

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K e y w o r d s

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A B S T R A C T

Present study was conducted to access the socio-economic characteristics of turmeric growers and cost and returns of turmeric production in Sangali district of Maharashtra. Multistage sampling design was used. From Sangali district, six villages from Miraj and Palus tehsil were selected randomly. The information pertaining to the objective was collected from 60 samples of turmeric growers from selected villages. Data pertaining to agricultural year 2015-16.Percentage, average, standard deviation were used to access socio-economic condition of the respondents, while coefficient variation was used to test the stated hypothesis. Result revealed that, the average age of respondents was 44.83 years. In respect to education level score found was 2.6. Average family size of turmeric respondents was 5.5. Average livestock holding with respect to milch animal and bullock pair of selected farmers were 2.75 and 0.73 respectively. Average occupational level score was 1.45. Average size of holding of turmeric growers was 2.62 ha of which net sown area was 2.41 ha. The average double cropped area was 1.07 ha. The cropping intensity was found 144.40 per cent. The average area under turmeric was 1.30 ha. The results showed that per hectare cost-A with regard to turmeric cultivation was Rs. 167905.68 while cost-B was, Rs. 291440.55 and cost-C was Rs. 309138.55. It was found that, gross return was Rs. 739170.00. It was clear that farm business income, family labour income and net profit were Rs. 571264.32, Rs. 447729.45 and Rs. 430031.45 respectively in turmeric production. Output input ratio was found to be 2.39.

Introduction

Turmeric (curcuma longa L.) is the dried underground rhizome belongs to the family 'Zingiberaceae'. Turmeric is native of India and china. The world turmeric is derived from the French word 'Terre-merite' meaning merit of the earth. The genus name curcuma is probably derived from the Persian word 'kurkum' a name also applied to saffron. Turmeric is called as 'Yellow gold', 'Indian saffron', and 'The golden spice of life'. It is one of the most essential spice used as an important ingredient in culinary

all over the world. The plant is an herbaceous perennial, 60-90 cm high with short stem and tufted leaf. It is tropical herb and can grow on different type of soils.

Turmeric cultivation does occurs in India, China, Indonesia, Iran, Sri Lanka, Peru and Pakistan. India is leading country in the spices scenario and enjoy monopoly in the spices production because of suitable climatic condition. India is known as "Home of Spices" and "Spice bowl of the world ".

India is largest producer, consumer and exporter of turmeric in the world. Turmeric is grown only in 6% of the total area under spices and condiments in India. India is the largest producer and exporter of turmeric in the world and accounts for 80% world's total production and 60 % of world export.

Turmeric production in India has shown a fluctuating trend in last five years. It was 43000tones in 2011-12, and increased to 65000 tones in 2012-13. Again decreased to 37000 tones in 2013-14 and then increased to 70000 tones in 2014-15. The annual turmeric production was 48500 tones in 2015-16.Hence price of turmeric is not fixed and tend to fluctuate year by year.

Maharashtra state in India ranks sixth in area under turmeric cultivation. The area under crop was 11000 hectare with a production of 45000 tonnes and productivity of 4.09 tonnes/hectare during 2015-16. In Maharashtra Sangali, Satara, Hingoli, Nanded, Parbhani are the major turmeric growing districts. It is one of the major crop in Sangali district. In Sangali the area under turmeric is 1500 hectares, whereas production and productivity is 13000 tonnes and 8.6 tonnes/hectare, respectively in 2015-16.

Materials and Methods

Multistage sampling design was used for selection of district, tehsils, villages and the turmeric growers. In first stage, Sangali district was selected purposively because turmeric is grown on large scale in the district. In second stage, two tehsils *viz*. Miraj and Palus were selected randomly. In Third stage, from each tehsil three villages were selected randomly. At the last stage, from each selected villages ten turmeric growers were selected randomly. Thus, from six villages, 60 turmeric growers were

selected for the present study. Required data were collected by personal interview method with the help of specially designed schedule for the agricultural year 2015-16. The objectives of the study were completed by applying simple statistical tools like means, averages, percentage, ratio etc.

Results and Discussion

Socio-economic characteristics of turmeric growers

Socio economic characters such as age of farmer, education, family size, occupation level and land holding of the selected sample were studied and presented in Table 1.1.The age of turmeric grower was 44.83 years. Education level of turmeric growers was 2.6 score. In case of family size score was 5.5 persons in turmeric farm. The occupational level of turmeric farm was 1.45 score at 3 quantum score. In case of land holding, turmeric growers with on an average 2.62 hectares of land.In case of bullock pair was 0.73 numbers. Similarly, milch animal was 2.75 in numbers in turmeric farm. In regard to investment, the commonly used assets wasRs. 314952.91 in turmeric farm.

Cropping pattern of the region is the most important factor in deciding the economic status of the region.Cropping pattern of turmeric growers were estimated and presented in Table 1.2.The gross cropped area was 3.48 hectares in turmeric farm. It was observed that, proportionate area of turmeric crop was 37.36 per cent in turmeric farm. It shows that, turmeric crop would be considered predominant crop in the study area. Kharif bajara crop is second major crop grown in study area; the proportionate area under Kharif bajara crop was 13.79 per cent in turmeric farm. The proportionate area of sugarcane crop was 12.07 per cent.

Table.1 Socio-economic characteristics of turmeric grower

Sr. No.	Particular	Standards
1.	Age of farmer	44.83
2.	Education level in 5 quantum score (Illiterate/primary/high school/higher secondary/ college level)	2.6
3.	Family size (person)	5.5
4.	Occupational level in 3 quantum score (Agriculture/Business/Service)	1.45
5.	Total land holding (ha)	2.62
6.	Average land holding (ha)	1.30
7.	Bullock pair (No)	0.73
8.	Milch animal(No)	2.75
9.	Investment on commonly used assets and farm building (Rs)	314952.91

Table.2 Cropping pattern of turmeric grower (ha/farm)

Sr. No.	Particular	Turmeric farm	
		Area	**Per cent**
	KHARIF		
1.	Turmeric	1.30	37.36
2.	Kharif Bajara	0.48	13.79
3.	Maize	0.21	6.03
4.	Sugarcane	0.42	12.07
	Total	**2.41**	**69.25**
	RABI		
5.	Gram	0.21	6.03
6.	Rabi Jowar	0.34	9.77
7.	Wheat	0.20	5.75
	Total	**0.75**	**21.55**
	SUMMER		
8.	Vegetables	0.06	1.72
9.	Groundnut	0.19	5.46
10.	Fodder crop	0.07	2.01
	Total	**0.32**	**9.20**
11.	**Gross cropped area**	**3.48**	**100**
12.	**Net sown area**	**2.41**	**69.25**
13.	**Double cropped area**	**1.07**	**30.75**
	Cropping intensity (%)	**--**	**144.40**

Table.3 Per hectare physical input and output of turmeric production

Particular	Unit	Turmeric
INPUT		
1. Hired human labour	Man days	147.25
2. Bullock labour	Pair days	15.21
3. Machine labour	Hrs.	10.02
4. Rhizome	qt	27.60
5. Manure	qt	35.28
6. Nitrogen	kg	185.68
7. Phosphorus	kg	86.15
8. Potash	kg	87.88
9. Irrigation	No	30.04
10. Family human labour	Man days	88.49
OUTPUT		
1. Fresh fingers	**qt**	**158.91**
2. Fresh mother sets	**qt**	**29.58**

Table.4 Per hectare cost of cultivation of turmeric (Rs/ha)

Particular	Turmeric farm	Per cent
1. Hired human labour	29450.00	(9.53)
2. Bullock pair	7605.00	(2.46)
3. Machine labour	4008.00	(1.30)
4. Rhizome	82800.00	(26.78)
5. Fertilizer	8266.93	(2.67)
6. Manure	5292.00	(1.71)
7. Plant protection	2869.36	(0.93)
8. Irrigation	7510.00	(2.43)
9. Land revenue	120.31	(0.04)
10. Incidental expenditure	280.85	(0.09)
11. Interest on working capital @ 13%	19284.89	(6.24)
12. Depreciation on capital assets	418.34	(0.13)
12. Cost-A($\sum$ item 1 to 12)	167905.68	(54.31)
13. Rental value of land	123074.69	(39.81)
14. Interest on fixed capita @ 11 %	460.18	(0.15)
15. Cost-B($\sum$ item 12 to 14)	291440.55	(94.27)
16. Family labour	17698.00	(5.73)
17. Cost-C ($\sum$ item 15 to 16)	309138.55	(100)

(Figures in parenthesis are the percentage to the Cost-C)

Table.5 Per hectare profitability of turmeric production (Rs/ha)

Particular	Turmeric farm
1. Returns from fresh fingers	635640.00
2. Returns from fresh mother sets	103530.00
3. Gross return (Item 1+2)	739170.00
4. Cost-A	167905.68
5. Cost-B	291440.55
6. Cost-C	309138.55
7. Farm business income (Gross return minus Cost-A)	571264.32
8. Family labour income (Gross return minus Cost-B)	447729.45
9. Net profit (Gross return minus Cost-C)	430031.45
10. Output-Input ratio (Gross return divided by Cost-C)	2.39
11. Per quintal cost of production	1640.08

It inferred that, the farmers are giving more importance to turmeric along with sugarcane and bajara crops in cropping pattern. Similarly, the proportionate area under rabijowar was 9.77 per cent in turmeric farm and proportionate area of gram was 6.03 per cent.

The area under groundnut and fodder crops was 5.46 per cent and 2.01 per cent, respectively in turmeric farm. The area under vegetables was 1.72 per cent. The total area under *kharif and rabi* crop was 69.25 per cent and 21.55 per cent, respectively. In regards to cropping intensity, it was observed that, the cropping intensity was 144.40 per cent. Similarly double cropped area was 30.75 per cent.

Costs, returns and profitability of turmeric cultivation

Per hectare utilization of physical input and output in cultivation of turmeric were worked out and presented in Table 2.1.

Use of per hectare physical input *viz*., hired human labour, family human labour, bullock labour, machine labour, rhizome, nitrogen, phosphorus, potash and plant protection chemicals was found to be at par on farms.

In cultivation of turmeric 147.25 man days of hired human labour, 88.49 man days of family human labour, 15.21 pair days of bullock labour, 10.02 hours of machine labour, 27.60 quintals of rhizomes, 35.28 quintals of manure, 185.68 kg of nitrogen, 86.15 kg of phosphorus and 87.88 kg of potash were utilized. With respect to the output it is observed that yield of Turmeric was 158.91 quintal from fresh fingers and 29.58 quintal from fresh mother sets in turmeric farm.

Per hectare cost of cultivation of turmeric was calculated and is presented in table 2.2. Per hectare cost of cultivation (cost-c) of turmeric was Rs.309138.55. The share of cost-A and cost-B in cost-C was 54.31 per cent and 94.27 per cent, respectively.

Profitability of turmeric production was worked out and is presented in table 2.3.Farm business income, family labour income and net profit was found Rs.571264.32, Rs.447729.45 and Rs.430031.45, respectively. It referred that, turmeric cultivation was more profitable.

It was clear that; Output-Input ratio was 2.39 in turmeric farm. It implied that, when 1 rupee spent on turmeric production it would

lead to give the returns of Rs. 2.39 in turmeric cultivation. Per quintal cost of production of turmeric was Rs. 1640.08.

The proportionate area of sugarcane crop was 12.07 per cent. It inferred that, the farmers are giving more importance to turmeric along with sugarcane and bajara crops in cropping pattern. Farm business income, family labour income and net profit was found Rs.571264.32, Rs.447729.45 and Rs.430031.45, respectively.

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