



Existing cultivation practices followed by the Turmeric (*Curcuma longa* L.) growers

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ABSTRACT

Present study was conducted in Kankawali and Dodamarg tahsils of Sindhudurg district of Konkan region. The sample was constituted 100 turmeric growers drawn from two tahsils. The analysis of data revealed that majority of the respondents were 'secondary education (31.00 per cent), medium 'experience in turmeric cultivation (67.00 per cent), medium annual income (68.00 per cent) and medium 'area under turmeric cultivation (52.00 per cent), medium extension contact (67.00 per cent) and motivation from progressive farmers (63.00 per cent) In existing cultivation practices followed by the turmeric growers, majority of the respondents had used the 'Selam' variety of turmeric, had used 'healthy seed rhizomes while selecting the planting material. Majority of the respondents had planted their turmeric in the month of 'May-June, had followed the spacing "30 cm x 35 cm' between two plants and rows. Majority of respondents used seed rate 3t/ha. Majority of respondents had used the 'Flood' irrigation method. All turmeric growers used the hand weeding for control the weed growth.

KEYWORDS: Existing, Cultivation practices, Turmeric (*Curcuma longa* L.)

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INTRODUCTION

India is popularly known as the "Spice Bowl of the World" as a wide variety of spices with premium quality is grown in the country since ancient times. Turmeric is a very important spice in India.

Its botanical name is *Curcuma longa* L. and belongs to family Zingiberaceae. It is also known as 'Indian Saffron' which is originated from South-east Asia. Its active ingredient is curcumin. Indian turmeric is considered to be the best in the world due to presence of high curcumin content. Turmeric contains up to 5.00 per cent essential oils and up to 5.00 per cent curcumin, a polyphenol.

In India, in the year 2010-11 turmeric was grown on an area of 195.1 thousand hectares with an annual rhizome production of 992.9 thousand metric tonnes in 2010-11.(2007-08). The productivity has increased steadily to 4,052 kg/ha (1996-97) from 2868 kg/ha (1950-51) with a decline during two decades from 1960-61 to 1980-81. The highest productivity that is 4952 kg/ha was recorded in 2005-06 (Source: Directorate of Economics and Statistics, New Delhi).

In Maharashtra, area under turmeric crop is around 6789 ha. with production of 8508 tonnes having productivity 1.25 tonnes per hectare (Anonymous, 2010). Sangli district is the major turmeric production centre in Maharashtra both in area and production. Sindhudurg district is well known for growing turmeric traditionally, but during last few years area under this crop has been increased tremendously with commercial production.

Present investigation therefore aims to ascertain the socio-economic profile of the turmeric growers and existing cultivation practices of turmeric followed by the farmers. With following objectives.

1. To study the socio-economic profile of the turmeric growers.
2. To know the existing cultivation practices followed by the turmeric growers.

METHODOLOGY

The study was conducted in Sindhudurg district of the Konkan region of the Maharashtra state. The Sindhudurg district is purposively selected for the present study. Out of eight tahsils from Sindhudurg district, based on the maximum area under turmeric, two tahsils namely Dodamarg and Kankawali were selected. From each selected tahsil list of turmeric growers was obtained from taluka agriculture office. From the list of each selected tahsil 50 respondents were randomly selected. Thus, the total sample consists of 100 turmeric growers. The ex-post-facto research design was used for the present study. The data were computed and processed and the established parameters like mean, frequencies, percentage and standard deviation were used as per requirement.

RESULTS AND DISCUSSION:

Socio-economic profile of the turmeric growers

Table 1. Distribution of the respondents according to their socio-economic profile.

Sl. No.	Profile of the turmeric growers	Respondents(N=100)	
		Number	Percentage
Education			
1	Illiterate	2	2.00
2	Pre-primary (1 st to 4 th)	10	10.00
3	Primary (5 th to 7 th)	10	10.00
4	Secondary (8 th to 10 th)	31	31.00
5	Higher secondary (11 th to 12 th)	23	23.00
6	Graduation (13 th and above)	24	24.00
Experience in turmeric cultivation (years)			
1	Low (Upto 4 years)	22	22.00
2	Medium (5 to 9 years)	67	67.00
3	High (10 years & above)	11	11.00
Annual income			
1	Low (upto Rs1,55,223)	19	19.00
2	Medium (Rs 1,55,224 to Rs 3,30,468)	68	68.00
3	High (Rs 3,30,469 and above)	13	13.00
Area under turmeric cultivation			
1	Small (upto 0.06)	19	19.00
2	Medium (0.07 to 0.19)	52	52.00
3	Large (0.20 and above)	29	29.00
Extension contact			
1	Low (upto 5)	18	18.00
2	Medium (6 to 10)	67	67.00
3	High (11 and above)	15	15.00
Sources of motivation			
1	Self	74	74.00
2	Relative	53	53.00
3	Friends	57	57.00
4	Progressive farmers	63	63.00
5	Agricultural Officer	62	62.00
6	Krishi Vidyapeeth officer	44	44.00

Maximum number (31.00 per cent) of the respondents had completed 'Secondary education', followed by 'Graduation' (24.00 per cent). An equal number (10.00 per cent each) of the respondents had 'pre-primary' and 'primary' level education. Majority (67.00 per cent) of the respondents had 'medium' experience in turmeric cultivation, while remaining 22.00 per cent and 11.00 per cent of the respondents had 'low' and 'high' experience in turmeric cultivation, respectively.

More than two third (68.00 per cent) of the respondents had 'medium' annual income, while 19.00 per cent respondents had 'low' annual income and 13.00 per cent respondents had 'high' annual income. The average annual income of the respondents was Rs 2.23 lakh. With regards to area under turmeric owned by the respondents it could be observed that more than half (52.00 per cent) of the respondents were having 'medium' area under turmeric cultivation, whereas, 19.00 per cent and 29.00 per cent of the respondents were having 'small' and 'large' area under turmeric cultivation, respectively. However the average area under turmeric cultivation owned by the respondents was 0.12 ha, indicating medium area under turmeric crop. The maximum area under turmeric crop were 0.40 ha and minimum area under turmeric crop were 0.05 ha. Majority (67.00 per cent) of the respondents had 'medium' level of extension contact, followed by 'low' (18.00 per cent) level of extension contact, while 15.00 per cent respondents had 'high' level of extension contact. The average extension contact score was 7.94

Majority (74.00 per cent) of the respondents were self-motivated, while 63.00 per cent of the respondents motivated due to 'progressive farmers'. Then 62.00 per cent and 57.00 per cent of respondents got motivation from 'agriculture officers' and 'friends' respectively. Followed by 53.00 per cent, and 44.00 per cent of the respondents got motivation from their 'relatives, and 'Krishi Vidyapeeth officers'. Thus, it could be said that turmeric growers had used personal cosmopolite as well as local cosmopolite channels for their source of motivation.

Existing cultivation practices followed by the turmeric growers.

The data in respect of existing cultivation practices followed by the turmeric growers in turmeric cultivation are presented in Table 2

Table 2: Distribution of the respondents according to the existing cultivation practices followed by the turmeric growers.

Sl. No	Cultivation practices	Respondents (N=100)	
		Number	Percentage
A. Land preparation			
1.	Ploughing	100	100.00
2.	Harrowing	100	100.00
3.	Application of FYM	88	88.00
4.	Application of poultry manure	6	6.00
5.	Application of goat manure	10	10.00
6.	Application of green manure	3	3.00
B. Varieties grown			
1.	Selam	91	91.00
2.	Ambehalad	09	9.00
C. Seed rate			
1.	2 t/ha	8	8.00
2.	2.5 t/ha	8	8.00
3.	3 t/ha	82	82.00
4.	3.33 t/ha	2	2.00
D. Time of planting			
1.	Summer (May-June)	100	100.00
E. Planting method			
1.	Ridges and furrows	67	67.00
2.	Flat bed	33	33.00
F. Spacing			
1.	30 cm x 30 cm	13	13.00
2.	30 cm x 35 cm	71	71.00
3.	30cm x 37 cm	16	16.00
G. Fertilizer management			

1.	Urea	54	54.00
2.	Single Super Phosphate	33	33.00
3.	Murate of Potash	13	13.00
4.	Suphala 15:15:15	59	59.00
5.	Suphala 19:19:19	22	22.00
H.	Irrigation		
	a) Method of Irrigation		
1.	Flood	62	62.00
2.	Sprinkler	38	38.00
	b) Source of irrigation		
1.	Well	21	21.00
2.	Tube well	75	75.00
3.	Well + Tube well	04	4.00
	c) Irrigation interval		
	Summer (May)		
	a) 8- 10 days	54	54.00
	b) 11-12 days	46	46.00
I.	Crop protection		
	a) Incidence of diseases		
1.	Wilt	18	64.28
2.	Leaf Spot	10	35.71

	b) Control measures		
1	Copperoxychloride	14	63.63
2	Dithane M-45	8	36.36
J.	Intercultural operation		
	a) Earthing up	100	100.00
	b) Weed management		
1.	Hand weeding No. of hand weedings		
	a) 2 times	21	21.00
	b) 3 times	36	36.00
	c) 4 times	25	25.00
2.	Use of Herbicide + hand weeding	18	18.00
K.	Labours for harvesting		
1.	Hired	10	10.00
2.	Family member	64	64.00
3.	Hired + Family member	26	26.00
L.	Processing of turmeric		
1.	Boiling	100	100.00
2.	Drying	100	100.00
3.	Polishing	100	100.00
4.	Milling	100	100.00
M.	Sale of turmeric powder		
1.	Self	83	83.00
2.	Commission agent	17	17.00
N.	Quantity of sale of produce		
1.	Small (Upto 1.93 q.)	16	16.00
2.	Medium (1.94 q. to 5.38 q.)	62	62.00
3.	Large (5.39 q. and above)	22	22.00

It is observed from the data presented in Table 2 that all (100.00 per cent) turmeric growers followed ploughing and harrowing for preparation of land for turmeric cultivation. In all 88.00 per cent of the turmeric growers applied FYM to the field. While 10.00 per cent of them applied goat manure, 6.00 per cent applied poultry manure and only 3.00 per cent of them applied green manure to the field.

The average quantity of FYM used by the respondents was 2.78 tonnes, poultry manure average quantity used by them was 1.33 tonnes, while goat manure and green manure average quantity used by the respondents was 1.95 and 2 tonnes respectively. The rate of application of FYM was nearly equal to the dose of recommendation. The recommended dose of FYM per ha was 30 to 40 t/ha. And other organic manure was not as per recommendation.

Majority (91.00 per cent) of the respondents had used the 'Selam' variety of turmeric and remaining 9.00 per cent respondents had used the 'Ambehalad' variety of turmeric for cultivation. Majority (82.00 per cent) of the respondents used the seed rate of 3 t/ha. While, same 8.00 per cent of the turmeric growers applied the seedrate of 2 t/ha and 2.5 t/ha. It was followed by only 2.00 per cent of the turmeric growers who had applied 3.33 t/ha seed rate for turmeric cultivation. 100.00 per cent of the respondents had cultivated the turmeric in the month of 'May-June'.

Majority (67.00 per cent) of the respondents had used the 'ridges and furrows' as a planting method. While 33.00 per cent of the turmeric growers used the flat bed for the cultivation of turmeric. Majority (71.00 per cent) of the respondents had followed a spacing of 30 cm x 35 cm while 16.00 per cent of the turmeric growers had cultivated the rhizomes at a spacing of 30 cm x 37 cm. Whereas 13.00 per cent of the respondents had followed a spacing '30 cm x 30 cm' in turmeric cultivation.

The data from Table 2 indicates that 59.00 per cent of the turmeric growers had applied 'suphala 15:15:15' while, 54.00 per cent and 33.00 per cent of them had applied 'urea and 'single super phosphate' respectively. It was also found that 22.00 per cent and 13.00 per cent of the turmeric growers used of 'suphala 19:19:19' and 'murate of potash' respectively. The average quantity of urea used by turmeric growers was 74.54 kg while, average 63.63 kg of single super phosphate used by the turmeric growers. Then average quantity 61.53 kg, 66.94 kg and 65.90 kg of murate of potash, suphala 15:15:15 and suphala 19:19:19 used by the turmeric growers.

Majority (62.00 per cent) of the respondents had used the 'Flood' as a irrigation method, while remaining 38.00 per cent of turmeric growers had used the 'sprinkler' method for irrigation. among the different sources utilized by the respondents for irrigation, 'tube well' was the major source as reported by 75.00 per cent respondents, while 21.00 per cent reported 'well' as the source of irrigation and only 4.00 per cent of turmeric growers used well and tube well both as a source of irrigation for turmeric cultivation. During summer season, majority (54.00 per cent) of the respondents had irrigated turmeric at '8-10 days' interval, while 46.00 per cent of the respondents had irrigated the turmeric at an interval of '11-12 days' interval.

However, 64.28 per cent of the turmeric growers identified 'wilt' disease in their field followed by 'leaf spot (35.71 per cent). Number of 28 per cent respondents who has identified disease in their field only 22.00 per cent respondents applied control measures to overcome the disease. The 63.63 per cent of the turmeric growers had used the Copperoxychloride to control the disease. While 36.36 per cent of the turmeric growers had used Dithane M-45 to control the disease.

The concentration of copperoxychloride applied by turmeric growers was 2-3 gm /lit of water for controlling the wilt fungal disease while concentration of Dithane M-45 was 2-3 gm/lit of water which was applied by respondents for controlling the leaf spot disease.

All 100.00 per cent turmeric growers followed earthing up. This operation was done after 2.5 – 3 months of planting. In this operation exposed rhizomes were covered with soil. Due to this operation the rhizomes quality was improved. After earthing up respondents had given light irrigation to the field.

Only 18.00 per cent of the turmeric growers had used the herbicide for the weed control and all turmeric growers used the hand weeding for control the weed growth. In hand weeding maximum number (36.00 per cent) of turmeric growers done the hand weeding three times. Followed by 25.00 percent respondents done hand weeding four times and 21.00 per cent of respondents done two times hand weeding for controlling the weed. The turmeric growers sprayed the turmeric crop with the help of herbicide like Glyphosate for controlling the weed growth. The application of herbicide they had done after 2 weeks of planting. The concentration of Glyphosate 4-5 ml/lit of water. At the start of germination of turmeric they were not using any herbicide for weed control.

All 10.00 per cent of the respondents paid labourers for harvesting. While 64.00 per cent of the respondents harvested the turmeric on their own and 26.00 per cent of the respondents had used hired as well as family members for harvesting and other intercultural operations. All 100.00 per cent of the turmeric growers followed the steps viz, 'boiling', 'drying', 'polishing' and 'milling' for the preparation of turmeric powder.

Majority (83.00 per cent) of the respondents marketed their produce own. Whereas, 17.00 per cent of the respondents marketed their produce through commission agents. It is observed that majority (62.00 per cent) of the turmeric growers had sold 1.94 to 5.38 qt. quantity of turmeric powder, while 22.00 and 16.00 per cent growers sold the 5.39 qt. and above and upto 1.93 qt. Quantity of turmeric powder in the local market respectively.

CONCLUSION

From the study, it became clear that turmeric growers have followed their own management practices like selection of variety, spacing, time of planting, irrigation interval, application of manures and fertilizers and plant protection measures. Thus, special efforts need to be made to recommend standardized cultivation management practices for turmeric by agricultural universities. It was noticed that majority of the turmeric growers had medium area under turmeric cultivation. Definite steps like good marketing facility at village or taluka level, reasonable rates and availability of inputs etc. may be taken by the government, so that the medium farmers could take the advantage of it. Majority of the turmeric growers seemed to be aware of the difference in the rate of the turmeric that they receive and the one the retailers pay in the market, the farmer is being exploited. Hence, there is need for regularized market. The farmers themselves should organize co-operative market agency, which could take care of turmeric produce and its market rate. From the study, it is clear that most of the turmeric growers had grown the turmeric crop on small area in spite of its good production and productivity potential. The extension agencies can take a notice of this and try to motivate the people towards large-scale cultivation. It would help them to elevate their economic condition.

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