

## Critical analysis of adoption behavior of turmeric cultivators in Tamil Nadu State

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### ABSTRACT

In the regime of IPR, turmeric crop is getting lot of attention due to its abundant economic value. In India, Tamil Nadu state occupied the second rank in area and production of turmeric cultivation followed by Andhra Pradesh. The average yield of turmeric in Tamil Nadu state is 6.08 tones per hectare however it is lower than the potential yield of 8 tones per hectare. But by following the recommended package of practices the farmers can still improve their yield from 7 to 8 tones per hectare. In this juncture analyzing the gap between the farmers' practices and recommended scientific practices is a first and foremost pragmatic step, which will pave the way towards the sustainable turmeric cultivation. A study has been undertaken with the 120 respondents during the year of 2000 in the 24 selected hamlets of Erode district. To calculate the adoption level of farmers, the weightage score for different practices were obtained from horticultural scientists of TNAU. The survey has been undertaken with the well-structured, pre-tested interview Schedule and the data were subjected for the statistical analysis. This study revealed that 65.83 per cent of the respondents belonged to medium adoption category with mean adoption score of 69.13. Majority of the farmers followed the seed rate as per the recommendation and majority of the respondents has been applying the FYM and chemical fertilizer as more than recommended.

**Key words:** Turmeric, Adoption, Weightage, and Technology

### INTRODUCTION

India is known as the "Land of Spices". At present India is the largest producer, consumer and exporter of spices in the world. A wide variety of spices are produced in the country. Among various spices grown, turmeric is the second largest spice with a share of 21 per cent followed by chilli (32 per cent) in the total spice production.

Turmeric is an important spice derived from a rhizome (a type of root) native to India and Southeast Asia. India has 185.32 lakh hectares under turmeric cultivation with a total production of 701.66 lakh tones. Among all the state in India, Tamil Nadu is ranked second with area of 33 lakh hectares and with production of 158.64 lakh tones followed by Andhra Pradesh. In Tamil Nadu, Erode district occupied the first place in area and production of turmeric cultivation. In the IPR regime, the economic value of turmeric crop is abundant and valid. It is mainly used as food flavored and colorant and it has been mainly used for various medicinal purposes and beautification purposes also.

The average yield in Tamil Nadu state is 6.08 tones per hectare but it is lower than the potential yield of 8 tones per hectare. The fact is that all the farmers are not getting the potential yield, but by following the recommended package of practices, farmers can get the yield from 7 to 8 tones per hectare. So analyzing the gap between the farmers' practices and recommended scientific practices is a first and foremost pragmatic step, which will pave the way towards the sustainable turmeric cultivation. This paper discussing this issue with the objective that to study the extent of adoption of improved cultivation practices of turmeric cultivators.

### MATERIALS AND METHODS

Erode district was selected for the study because it ranks first in area under turmeric cultivation in Tamil Nadu state. A multistage stratified random sampling technique was employed. Of the seven taluks of Erode district, three taluks were selected, as they occupied first three places in area under turmeric cultivation. From each taluks, two blocks were selected and from each block two revenue villages were selected based on the criteria of maximum area under turmeric cultivation. Further from each revenue village, two hamlets were selected by simple random sampling and thus totally 24 hamlets were selected for the study.

There were not many variations in number of turmeric cultivators in each hamlet. A list of farmers growing turmeric crop in the selected hamlets had been obtained from the AAOs (Assistant Agricultural

Officer) of the particular area. From this list, five cultivators were selected from each hamlet by simple random sampling and thus a total of 120 respondents have been selected for this study. Keeping the objective and scope in mind, a well-structured interview schedule was prepared and it was pre tested in a non-sampling area. The data were collected with the interview schedule and tabulated for statistical analysis.

### Determination of adoption score for different practices based on importance and waightage:

It is a fact that all the practices do not demand equal competence and contribute equally to the yield. So to determine the weightage for different practices; a list of practices of turmeric cultivation was sent to the horticultural scientist of TNAU and they were asked to assign scores to each of the practices out of total 100 scores. The average score thus obtained was considered as weightage of that practices. The mean weightage for the individual practices are given in Table-1.

Further in order to be more scientific in the calculation of total adoption score, it was also felt essential to consider the partial adoption of the respondents. The assignment of weightage for partial adoption was based on relative scoring according to the quantity actually used, taking into consideration the total score assigned to those practices.

Table 1 : Mean weightage for the individual practices:

Recommended practices	Mean weightage
Use of recommended variety	11
Sowing season	10
Proper seed rate	8
Seed treatment	6
Application of FYM	6
Application of bio-fertilizer	5
Application of chemical fertilizer	11
Application of micro-nutrient	5
Irrigation	7
Intercropping	5
Intercultural operation	5
Plant protection measures	10
Harvesting (time and method)	5
Curing	3
Polishing	3

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**RESULTS AND DISCUSSION****Overall adoption level of turmeric growers:**

The result presented in table 2 indicated that 65.83 per cent of the respondents belonged to medium adoption category with mean adoption score of 69.13, followed by 17.50 per cent and 16.67 per cent of the respondents belonging to high and low adoption categories with mean adoption scores of 84.00 and 53.93, respectively. It might be due to that most of the farmers had medium level of knowledge about the recommended scientific turmeric cultivation practices and in the same time some improved recommended practices such as bio-fertilizer and earthing-up has been carried out by less number of respondents. The findings are in conformity with those of Nirmaladevi and Manoharan (1997).

variety, while majority of the respondents used local variety. It is because of the farmers in the study area cultivate the local variety for the long time and in the same time the local variety has good market value also. They were also had opinion that the local varieties had better weightage, better pest and disease resistance and good in color as compared to the recommended varieties.

It was further observed that majority of the respondents (74.17) did not apply any bio-fertilizer. The reason could be that in general farmers are more interested in short term benefit rather than long term and sustainable benefit and they were also opinion that bio-fertilizer is not contributing for more yield when compared to the inorganic fertilizer and the application of bio-fertilizer is labor intensive hence it has to be applied separately.

Table 2 : Adoption level of improved cultivation practices of turmeric by farmers. (n = 120)

Adoption categories	Respondents		Mean adoption score
	Number	Percentage	
Low (<57.85)	20	16.67	53.93
Medium (57.85 to 78.11)	79	65.83	69.13
High (> 78.11)	21	17.50	84.00
Mean = 67.98			S.D. = 10.13

**Adoption level of individual practices followed by the turmeric cultivators:**

The results presented in the Table 3 indicated that 75.83 per cent of the respondents practiced seed rate as per the recommendation. This might be due to that the farmers were convinced by the profitability and practicability of this practice. Further with long years of farming experience they themselves found out the importance of the correct seed rate. Majority of the cultivators (78.34 per cent)

Majority of the respondents had applied nitrogen, phosphorus and potassium as more than recommended. The reasons given by the respondents were that there would be more wastage of fertilizer due to frequent irrigation. Further, the common tendency prevailing among the farmers is that more fertilizer would increase the rhizome size and most of the farmers have not aware about the optimum recommended dose of fertilizer. Majority of the farmers (80.84%) has been following earthing-up for less number of times than the recommended number

Table 3 : Extent of Adoption for the individual practices of the turmeric growers. (n = 120)

Cultivation Practices	Level of adoption						Not adopted	
	As recommended		Less than Recommended		More than Recommended			
	Number	Per cent	Number	Per cent	Number	Per cent	Number	Per cent
Variety	35	29.17	-	-	-	-	85	70.83
Seed rate	91	75.83	-	-	29	24.17	-	-
Application of FYM	6	5.00	19	15.83	94	78.34	1	0.83
Application of bio-fertilizer	3	2.50	3	2.50	25	20.83	89	74.17
Application of Chemical Fertilizer.								
N	2	1.66	35	29.17	82	68.33	1	0.83
P	4	3.33	15	12.50	101	84.17	-	-
K	7	5.83	42	35.00	71	59.17	-	-
No. of split application of N <sub>2</sub>	1	0.83	119	99.17	-	-	-	-
Earthing up	13	10.83	97	80.84	1	0.83	9	7.50
Application of pesticide	15	12.50	4	3.33	37	30.83	64	53.34
Application of fungicide	28	23.33	23	19.17	54	45.00	15	12.50

applied FYM more than recommended dose. The reason given by the respondents that FYM would reduce the pest and disease to a larger extent and also reduce the expenditure on chemical fertilizer. The respondents were also has the opinion that the application of more FYM would increase the fertility of the soil and rhizome size.

Nearly 29.17 per cent respondents used the recommended

of times. The reason given by the respondents was that frequent disturbances of soil would affect the growth of rhizome and also earthing-up operation demands more labour.

As per the plant protection is concern 30.83 per cent and 45.00 per cent of the respondents applying pesticide and fungicide as more than recommended dose, respectively. The major problems prevailing

in turmeric cultivation are rhizome rot and leaf blotch and the common tendency among the farmers that more chemical spraying would control the incidence of pest and disease very effectively that may induce the farmers to go for more number of sprays and at the same time most of the cultivators did not aware about the optimum dose of plant protection chemicals.

#### IMPLICATIONS

Majority of the farmers in the study area applying pesticide and fungicides as more than recommended. Fertilizer application also shows the same trend. If the same practices have been continued for the long time then it will affect the sustainable turmeric cultivation in this potential area. However there are some few farmers who were using the correct dose of plant protection chemicals. So it is suggested that Extension agency may arrange field visit for the low adoption category to the field of farmers of high adopter category to show the relative advantage of use of correct dose of chemical and the demerits of applying more chemicals.

Majority of the farmers has not applying the bio-fertilizer for turmeric. It is true that application of bio- fertilizer will certainly improve the turmeric cultivation in the long run. So convincing the farmers towards this practice is an urgent concern for the researchers and extension personnel in this area. Necessary measure about the importance of this issue may be taken by nearby KVKs through various mass media and by various training programme

For the sustainable turmeric cultivation and more profit for farmers, the future studies on ITK in turmeric cultivation, training needs of farmers, factors affecting recommended dose of fertilizer use, the study on integrated turmeric based farming system and possibilities for having organic farming in turmeric cultivation, export oriented study, and patenting of value addition products from turmeric may be taken by the agricultural researchers in various field of agriculture.

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Received : November, 2005; Accepted : April, 2006

ISSN : 0973-4732

ASIAN JOURNAL OF HOME SCIENCE  
AN INTERNATIONAL JOURNAL