

**STUDIES ON THE PERFORMANCE OF SOME VARIETIES OF
TURMERIC (*Curcuma* species) AND ITS FERTILIZER
REQUIREMENTS**

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Eventhough turmeric is one of the successful crops under Wynad conditions, it has not gained as much importance as ginger. Anjeneyulu and Krishnamoorthy (1968) have classified the cultivated varieties of turmeric in Andhra Pradesh and reported the behaviour of certain varieties in getting higher yield. Fertilizer trials involving different levels of N, P and K on turmeric conducted at Himachal Pradesh (Anon, 1968) did not give significant results. Informations on these lines are scanty on turmeric under Kerala conditions. The present studies were hence undertaken to find out (1) a suitable variety of turmeric for large scale cultivation and (2) an optimum fertilizer dose for getting substantial yield of turmeric.

Materials and Methods

Two field experiments were laid out on moderately fertile clayloam-lateritic soil having a pH range of 4.8 to 5.1 at the Central Horticultural Research Station, Ambalavayal under rainfed conditions during the years 1968-'69 and 1969-70.

The first experiment with 17 varieties of turmeric collected from various localities (Table 1) as treatments was laid out in randomized-block design with 4 replications. Planting was done on 30-4-1968 and 28-4-1969 respectively. Two beds of 3m X 1m comprised one plot. Uniform application of farm yard manure @ 5 kg/bed was done for all treatments. Two mulchings, one immediately after planting and the other at 60 days after planting, were given with green leaves @ 10 kg/plot. All the treatments received, in addition to the above, 70 kg N, 70 kg P₂O₅ and 140 kg K₂O/ha. N was applied in 2 equal doses, first dose at 60 days and second dose at 90 days after planting. P₂O₅ was applied in a single dose at planting and K₂O in two equal doses, first dose at planting and second dose 60 days after planting.

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The second experiment was laid out with 8 treatments (Table 2) in randomized-block design with 4 replications. One plot consisted of 4 beds of 3m X 1m size. All the treatments received basal application of farm yard manure, mulching and the fixed doses of fertilizers as explained under the first experiment. Planting was done on 29-4-1968 and 25-4-1969 respectively during the two years with the variety *Armoor*. The crops were harvested at 9 months after planting.

Results and Discussion

(a) *Performance of the varieties*

Statistical analysis of the data revealed that the treatment effect was not significant during individual years though it was significant under pooled analysis. The variety *tekurpetta*, an introduction from Cuddapah district of Andhra Pradesh, gave the highest yield (Table 1) and was significantly superior over the varieties *Sugandham*, *Chayapasuma*, *G. L. Puram-1* and *Wynad local*.

Anjeneyulu and Krishnamoorthy (1968) have reported that a selection from *Tekurpetta* variety gave as much as 18% increased yield than the local varieties tried. They also found considerable difference among varieties in respect of factors like drying %, colour, shape, bitterness etc. of the rhizomes. Although most of the varieties in the present study were equal in yield potential, they deserve further evaluation for other economic characters.

(b) *Yield of turmeric under different levels of fertilizers*

The yield of turmeric was significantly affected by the application of fertilizers in both the years (Table 2). The treatment 100 kg N + 100kg P205 + 200 kg K20/ha produced the maximum yield though the response was not linear. The higher yield at a lower fertilizer dose (T2) especially during 1969-70 and lower yields under all other treatments except TV were found to be erratic and difficult to explain. The fertilizer experiments conducted at Kaudaghat, Himachal Pradesh with 3 levels of N and 2 levels each of P and K also did not give significant results (Anon, 1968). Further studies with a lower level of farm yard manure and green leaf mulching is suggested.

Summary

Two field experiments to find out (1) a suitable variety of turmeric and (2) an optimum dose of NPK fertilizer for turmeric were conducted at the Central Horticultural Research Station, Ambalavayal for 2 years

Table 1
Mean yield of green turmeric under different varieties

Treatment No.	Variety	Place from where collected	Mean yield (kg/plot)		
			1968-69	1969-70	Combined
T ₁	Armoor	Nizahabad	14.83	16.63	15.73
T ₂	Amrithapani Kothapeta	West Godavari	14.85	17.10	15.98
T ₃	Sugandham	Cuddapah	8.83	15.75	12.29
T ₄	Kodur Type	, ,	18.34	18.68	18.51
T ₅	Chayapasuma	Vizakapattanom	11.48	14.51	13.00
T ₆	T. Sundar	Guntur	19.91	16.76	18.34
T ₇	Vontimetta	Cuddapah	22.66	16.88	19.77
T ₈	Duggirala local	Guntur	21.26	15.64	18.45
T ₉	Tekurpetta	Guddapah	22.73	18.56	20.65
T ₁₀	Nandyal Type	Kurnool	16.88	17.89	17.39
T ₁₁	Etamukala	Guntur	21.26	17.10	19-18
T ₁₂	Kutchipudi	*	19.27	14.29	16.77
T ₁₃	G. L. Puram-I	Sreekakulam	9.61	12.04	10.83
T ₁₄	G. L. Puram-II	.."	17.33	15.64	16.49
T ₁₅	Rajpuri Local	Tasgoan	24.08	15.30	19.69
T ₁₆	Kharadi Local	Sangli	16.93	15.50	16.22
T ₁₇	Wynad Local	Calicut	13.16	8.79	10.98
		C. D. (0.05)	8.29	5.64	4.95

Table 2
Mean yield of green turmeric under different doses of fertilizers

Treatment	Details	Yield (kg/plot)		
		1968-69	1969-70	Combined
T ₁	No fertilizers (control)	16.99	26.89	21.94
T ₂	40 kg N + 40kg P ₂ O ₅ + 80 kg K ₂ O/ha	17.61	42.30	29.96
T ₃	50 50 100	20.20	37.01	28.60
T ₄	60 60 120	20.34	32.83	26.59
T ₅	70 70 140	20.31	33.86	27.09
T ₆	80 ,, 80 ,, 160 ,,	14.91	32.74	23.98
T ₇	100 ,, 100 ,, 200 ,,	29.00	39.83	34.42
T ₈	120 ,, 120 ,, 240 ,,	18.83	32.49	25.51
	C. D. (0.05)	5.14	8.72	4.93