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ADAPTABILITY OF TURMERIC GENOTYPES IN ACID HILL SOILS OF MANIPUR

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India is the world's largest producer and exporter of turmeric with an area of 1,22,800 ha producing 3,39,800 tonnes (Anon, 1990). Being a high value crop, turmeric cultivation has been an economic proposition in the north-eastrn states such as Assam, Meghalaya, Manipur and Tripura. There are a number of varieties cultivated in the region with varying yield and dry matter recovery (Borthakur, 1992). The performance of a variety is the result of genotype x environment interaction which in turn depends a lot on the agro-climatic condition. Several studies showed the varying performance of genotypes under varying environments and the genotype having maximum adaptability will perform best under a given *environment.* Therefore, the present study was undertaken to evaluate the performance of 23 turmeric genotypes and to identify best suitable variety for the state of Manipur.

An experiment was conducted with 23 turmeric genotypes in **RBD** with 3 replications during 1999-2000 in acid hill soils of Manipur. Observations on plant height (cm), number of tillers per plant, length and girth of rhizome (cm), length of primary fingers (cm) fresh rhizome yield (t/ha) and dry matter recovery (%) were recorded and analysed statistically (Panse and Sukhatme, 1954).

Study of vegetative characters of different genotypes (Table1) showed significant difference with respect to plant height where as the variation in number of tillers per plant was insignificant. maximum plant height recorded was 233.86cm in meghalaya local follwed by duggirala-325 (133.46cm) and PCT-11 (130.63cm). where as kasturi tanaka was the shortest with a height of 93.43cm . the number of tillers per plant ranged from 3.38 in Duggirala-325to 2.20 each in Chayapasupu and Dehradun local.

Among yield characters studied almost all the parameters showed significant variation (Table-1) except length of rhizome. The mean length of rhizome varied from 9.41 cm in Thoubal local to 6.06 cm in Nagaland local. Girth of rhizome was the highest in genotype Thoubal local (21.00 mm) followed by Mannuthy local (18.35 cm) and Duggirala 325 (17.8 cm) whereas Sikkim Red had minimum girth of rhizome (13.66). The genotype PCT-8 had maximum length of primary fingers (21.8 cm) followed by Duggirala-325 (20.8 cm) and Thoubal local (20.72 cm). The primary fingers were the shortest in case of Sikkim yellow (13.2 cm). Fresh yield of rhizome was maximum in Thoubal local (31.78 t/ha) followed by Duggirala-325 and GL-puram (29.44 t/ha each) where as the genotype Sikkim Red gave the lowest yield of fresh rhizome(17.0 t/ha). Similar variability in fresh rhizome yield were reported earlier by

Joseph Phillip et al (1982) and Reddy *et al* (1989). The dry matter recovery percentage was maximum in genotype Kasturi tanaka (21.20%) followed by Kuchupudi (21.16%) and PCT-12 (21.06%) and the minimum in Sikkim yellow (16.86%). With respect to total dry yield of turmeric, the genotypes Duggirala-325, Thoubal local (a local genotype of Manipur) and GL-Puram were found superior. Therefore, these genotypes may be used for large-scale cultivation of turmeric in the state.

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Table 1 Variation in growth and yield of turmeric genotypes

Name of variety	Plant height (cm)	No. of tillers	Length of rhizome (cm)	Girth of rhizome cm	Length of primary rhizome (cm)	Fresh rhizome yield (t/ha)	Dry matter recovery (%)
Duggirala No. 325	133.46	3.38	7.70	17.8	6.93	29.44	20.3
Mannuthy local	120.66	3.50	6.17	18.35	6.47	26.78	19.23
Meghalaya local	133.86	3.67	6.50	14.60	5.27	22.22	19.16
Kuchipudi	124.23	2.72	7.30	14.86	6.37	28.00	21.16
Jorhat local	129.30	2.93	6.73	14.23	6.17	21.44	20.16
Nagaland local	99.40	3.60	6.06	15.46	5.77	20.99	19.03
Dehradun local	120.66	2.20	7.03	16.86	5.50	17.67	20.00
Daghi	112.20	2.40	6.70	13.96	5.30	19.00	18.43
Manipur local	111.23	2.20	6.46	14.73	4.77	17.22	18.93
PCT-15	120.66	3.40	6.86	15.53	6.39	25.56	19.30
Armoor	103.26	2.67	6.67	16.60	5.93	22.67	19.03
PCT-12	122.60	3.00	7.93	15.76	6.47	20.00	21.06
Lakadang	109.66	3.53	6.93	15.50	5.93	18.11	19.43
PCT-11	130.63	2.67	6.70	16.37	6.80	22.11	19.85
PCT-8	124.53	2.53	7.07	15.90	7.27	24.78	20.00
Sugantham	108.46	3.00	6.43	15.46	5.60	23.22	20.33
GL-Puram	131.00	2.93	6.90	17.33	6.10	29.44	20.43
PCT-13	120.23	2.77	6.62	14.88	6.22	20.22	17.50
Kasturi tanaka	93.40	2.80	6.46	14.90	5.40	21.56	21.20
Chaya pasupu	103.50	2.20	7.56	16.40	5.83	23.89	18.13
Sikkim yellow	103.60	2.53	6.33	14.03	4.40	19.22	16.86
Sikkim red	98.53	2.67	6.50	13.66	4.77	17.00	17.80
Thoubal local	108.66	2.87	9.41	21.00	6.91	31.78	17.76
	**	N.S.	N.S.	**	**	**	**
C.D. (P=0.05)	7.70	-	-	3.53	1.12	7.56	0.47

** Highly significant NS : Not significant

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