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Influence of different Levels of Nitrogen and Potassium on Growth, Yield and Quality of Turmeric (*Curcuma longa* L.) under Terai Region of West Bengal

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Abstract—*A field experiment was conducted at experimental farm of Regional Research Sub-Station (TZ), Uttar Banga Krishi Viswavidyalaya, Kharibari, Darjeeling, West Bengal during Kharif seasons of 2015-16 and 2016-17 to evaluate the response of turmeric (cv. Patna) to various levels of nitrogen (N) (0, 90, 120, 150 and 180 kg/ha) and potassium (K) (0, 100, 120 and 140 kg/ha) under terai region of West Bengal. Both nitrogen and potassium, alone or in combination, had a significant effect on growth, yield and yield contributing characters and also quality characters of turmeric. It was also observed that turmeric was more responsive especially to N and K. However, the combined effect of N and K increased the yield and other yield parameters up to $N_{180}K_{120}$ kg/ha and significantly differed over the control (N_0K_0). The maximum plant height (146.2 cm and 142.6 cm), number of leaves per plant (9.6 and 9.2), number of tillers per clump (3.8 and 3.5), leaf length (60.80 cm and 58.60 cm), leaf area (537.59 cm^2 and 531.23 cm^2), number of primary fingers (9.4 and 9.1 per plant) were recorded with $N_{180}K_{120}$ kg/ha. Similarly, finger length, finger girth, finger fresh weight and yield as well as curing percent (27.09% and 26.85%) were also significantly influenced by applying N and K. The highest primary finger weight (38.57 g and 35.28 g), primary finger girth (6.24 cm and 6.09 cm), fresh weight per rhizome (438.70 g and 426.60 g), fresh yield (27.08 t/ha and 25.58 t/ha) and mean yield (26.34 t/ha) were recorded with treatment combination of $N_{180}K_{120}$ kg/ha.*

Keywords: *Turmeric, Nitrogen, Potassium, Growth and Yield*