



## Impact of fertigation on leaf nutrient status in turmeric (*Curcuma longa* L.) cv. BSR 2

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### ABSTRACT

A field experiment to study the influence of fertigation of N and K fertilizers on the leaf nutrient status of turmeric (*Curcuma longa* L.) cv. BSR 2 was carried out during June 2007 to February 2008. The experiment was laid out with seven treatments replicated four times in a randomized block design. The leaf nutrient contents in general increased upto 210 days and then declined. The leaf N and K concentrations were higher with the fertigation treatments irrespective of the stages compared to fertilizer application in the soil. Among the fertigation treatments there were corresponding levels of leaf N, P and K concentrations for increase or decrease in levels of N and K employed. Fertigation using water soluble fertilizers registered higher concentration of leaf NPK than straight fertilizers.

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Being a nutrient exhaustive crop, turmeric has been known to generally respond well to increased soil fertility levels (Subramanian *et al.*, 2001; Rao and Rao, 1988). Owing to its long duration and high productivity, it requires heavy input of fertilizers. Research works carried out on its nutritional requirements have resulted in location specific fertilizer recommendations in different states (Rethinam *et al.*, 1994). In Tamil Nadu, a nutrient dosage of 150: 60: 108 kg NPK ha<sup>-1</sup> has been generally recommended (TNAU, 2004). In almost all the turmeric growing regions, the nutritional requirements are met through application of fertilizers in the soil. Split application of nutrients, especially nitrogen and potassium, has been recommended to improve the yield and quality (Balashanmugam and Subramanian, 1991; Jagadeeswaran *et al.*, 2004).

Soil application of fertilizers is associated with nutrient loss through leaching and evaporation. It may also lead to pollution of soil environment. Turmeric being a crop with high water requirement, assured water supply through out its growth period of 9 to 10 months is essential. Normally turmeric crop is irrigated at an interval of 5-7 days depending on soil and weather factors.

Increasing scarcity of water often encountered in many parts of turmeric growing regions necessitates alternative means to provide adequate water to the crop without wastage. Drip irrigation has now emerged as one of the innovative approaches to precisely meet the water requirements of many crops. Of late, fertigation *i.e.* application of fertilizer through drip irrigation has been found to dramatically improve the yield and quality of many horticultural crops (Selvaraj *et al.*, 1997; Salo *et al.*, 2000).

Except in a few research reports, published information on the influence of fertigation on turmeric is currently lacking. It has been reported that drip irrigation and fertigation can reduce the water requirement of turmeric by 20-60 % (Selvaraj *et al.*, 1997). While fertigation can be practiced using conventional fertilizers such as urea and potash with reduced costs, use of water soluble fertilizers may be effectively employed to improve quality and productivity. Enhancement of yield and quality of various crops has been reported by using water soluble fertilizers in fertigation (Hebbar *et al.*, 2004). The influence of water soluble fertilizers on crop growth and yield of turmeric has not been so far investigated in detail. With this background in consideration, the present study