



## Research Paper

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# Effect of different levels of nitrogen and phosphorus on growth and yield of turmeric (*Curcuma longa* L.) cv. "KESAR" under north Gujarat condition

■ H.N. LEUA, M.M.PATEL<sup>1</sup>, B.N. SATODIA<sup>1</sup>, R.S. PARMAR<sup>1</sup> AND B.J. PATEL<sup>1</sup>

### Members of the Research Forum

#### Associate Author :

<sup>1</sup>Department of Horticulture, C.P. College of Agriculture, S.D. Agricultural University, Sardarkrushinagar, BANASKANTHA (GUJARAT) INDIA

#### Author for correspondence :

##### H.N. LEUA

Department of Horticulture, C.P. College of Agriculture, S.D. Agricultural University, Sardarkrushinagar, BANASKANTHA (GUJARAT) INDIA  
Email : hasmukh.leua@yahoo.com

**Abstract :** A study was under taken at Horticultural Instructional farm, Chimanbhai Patel College of Agriculture, Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar during *Kharif* season 2007-2008 to find out the effect of nitrogen and phosphorus on growth and yield of turmeric and to study the comparative economics of different treatments. Different levels of nitrogen recorded remarkably higher value in almost all the growth parameter but non- significant effect on yield parameter. Application of 90kg N ha<sup>-1</sup> and 60kg N ha<sup>-1</sup> produced the highest rhizomes yield. However, effect of phosphorus and nitrogen was non- significant. Thus for obtaining highly return in turns of production and economics of turmeric cv. KESAR crop should be fertilized with 90 kg N ha<sup>-1</sup> and 40kg P<sub>2</sub>O<sub>3</sub> ha<sup>-1</sup>.

**Key words :** Turmeric, Nitrogen, Phosphorus, Growth and yield

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**T**urmeric (*Curcuma longa* L.), an herbaceous perennial plant belongs to the family zingiberaceae under the order scitaminae, is the most valuable and important spice all over the worlds. Turmeric has a characteristic flavour and yellow colour. It is cultivated for its underground rhizomes which are used as condiment, dye stuff, drug and cosmetic. The turmeric rhizomes contain a variety of pigment in which 'curcumin' is the major pigment responsible for colour. A part from curcumin and the volatile oil 'turmerol', it also contains appreciable quantities of proteins (6.3 %), lipid (51 %), carbohydrates (69.4 %), and fiber (2.6 %). It is also rich in mineral like phosphorus, calcium, iron and vitamin A. In Gujarat, it is grown in an area of 1017 ha with a production of 1416 metric tones (Anonymous, 2006). Fertilizers viz., nitrogen and phosphorus needed for improving the growth and yield of turmeric under suitable agro-climatic conditions.

## RESEARCH METHODS

The field experiment was conducted during *Kharif*

season of the year 2007-08 at Sardarkrushinagar Dantiwada Agricultural University, Sardarkrushinagar. The three levels of nitrogen 90, 120 and 150 kg ha<sup>-1</sup> and phosphorus 40, 60 and 80 kg ha<sup>-1</sup> were tested on turmeric cv. KESAR in factorial Randomized Block Design with three replications. Planting was done in the second week of June with spacing of 30 x 15 cm. The quantity of nitrogen and phosphorus were given as per treatment, potassium was supplied at the rate of 60 kg ha<sup>-1</sup> as a common dose. Remaining half dose of nitrogen was applied in two splits at 30 and 60 days after planting in the form of urea. The standard cultural practices were done during the experimental period.

## RESEARCH FINDINGS AND DISCUSSION

The results obtained from the present investigation have been discussed in details as under:

### Effect of nitrogen:

Data presented in Table 1 indicated that plant height,