



## Research Paper

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# Effect of integrated nutrient management on growth, yield and economics of turmeric (*Curcuma longa* L) var. RAJENDRA SONIA

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**ABSTRACT :** The present study entitled effect of integrated nutrient management on growth, yield and economics of turmeric (*Curcuma longa* L.) was conducted at Department of Horticulture, T.C.A., Dholi during 2007-2008 to 2009-2010. Among three treatments fully organic, integrated nutrients management and fully inorganic, integrated nutrient management *i.e.* FYM @ 200 q ha<sup>-1</sup> + ½ (N:P:K::150:120kg/ha<sup>-1</sup>) + P-solublizer, *Pseudomonas fluorescence* and *Trichoderma* as seed treatment and soil application @ 20 kg ha<sup>-1</sup> each bio-fertilizer with spray or drenching with mancozeb @ 0.25 per cent and malathion @ 0.1 per cent at 21 days interval from July to October produced maximum plant height (121.18 cm), number of leaves (10.28) and yield per hectare (54.93 t ha<sup>-1</sup>) and gave the maximum net profit Rs.4,26,403 ha<sup>-1</sup> and cost : benefit ratio (Rs.4.46).

**KEY WORDS :** Organic, Inorganic, Bio-fertilizer, Chemical fungicide, Insecticide, Organic fungicide, Insecticide, Turmeric

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The spices turmeric or Haldi constitute boiled, dried, cleaned and polished rhizome (The underground swollen stem of plant) of *Curcuma longa* L. Turmeric an herbaceous, perennial belonging to the family Zingiberaceae with luftel leaves. It is a sacred, auspicious, dual purpose spice for Asian countries valued for its food adjunct property and also a source of safe natural colouring agent required by pharmaceutical, confectionary and cosmetic industry. Turmeric being a rhizome crop requires a heavy input of fertilizers. Organic manures not only increase the yield but also improve physical, chemical and bio-logical properties of soil that improve fertility, productivity, water holding capacity of soil (Blane *et al.*, 1989). The use of both organic and inorganic fertilizer called integrated nutrient management not only increases the yield but also improve physical, chemical and bio-logical properties of soil that improve fertility, productivity, water holding capacity of soil. Use of FYM increase soil organic matter content and had greater residual effects (Kumaran *et al.*, 1998). Very little work has been reported on the effect of organic fertilizers on turmeric in Bihar state,

especially under Bihar conditions, therefore, the present study was undertaken at the Department of Horticulture, Tirhut College of Agriculture, Dholi under Rajendra Agricultural University, Bihar during *Kharif* season 2007-2008 to 2009-2010.

## RESEARCH METHODS

The experiment was carried out at Department of Horticulture, Tirhut College of Agriculture, Dholi, Muzaffarpur under Rajendra Agriculture University, Bihar during *Kharif* season 2007-2008 to 2009-2010. The experiment was laid out in randomized block design. There were three treatments and seven replications. The treatment details are given below.

### T<sub>1</sub>-Fully organic:

Best organic nutrient combination (FYM @ 330 q ha<sup>-1</sup>+ pongamia oil cake @ 8.30 q ha<sup>-1</sup> + sterameal @ 8.30 q ha<sup>-1</sup> + rock phosphate @ 8.30 q ha<sup>-1</sup>+ Neem oil cake @ 8.30 q ha<sup>-1</sup>+ wood ash @ 8.30 q ha<sup>-1</sup>)+ *Azospirillum*, p-solublizers, *Pseudomonas fluorescence* and *Trichoderma* as seed treatment and soil application @ 20 kg ha<sup>-1</sup> with spray of B.M. @ 0.5 per