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A Review :

MICRONUTRIENT STUDIES IN TURMERIC

M.VELMURUGAN, N.CHEZHIYAN, M.JAWAHARLAL AND M.ANAND

See end of article for authors' affiliations

Correspondence to :
M. VELMURUGAN
Department of Horticulture, Horticulture College and Research Institute, T.N.A.U., COIMBATORE (T.N.) INDIA

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Turmeric (*Curcuma longa* L.) a herbaceous perennial belonging to the family Zingiberaceae grows with tufted leaves which is a commercial crop of tropics. 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.

India is the largest, monopoly producer and traditional exporter of turmeric in the world. Area and production of turmeric in the country showed increasing trends during the last five years. The highest area (1.69 lakh hectare), production (6.98 lakh tonnes) and productivity (4130 kg ha^{-1}) was recorded in 2001-2002 contributing 82 per cent of production and 6.02 per cent of export, earning a foreign exchange of 58 crores annually. In India, turmeric is cultivated mainly in Tamilnadu, Andhra Pradesh, Kerala, Karnataka, Orissa etc. In Tamil Nadu it is restricted to Erode, Salem, Nammakkal, Perambalur, Villupuram and Coimbatore districts.

Research work :

Balashanmugam *et al.* (1990) found that either basal application or foliar spray of both zinc and iron had no significant influence on the plant growth parameters. Soil application of both zinc and iron however favorably influenced weight of mother and finger rhizomes with ultimate result of higher total yield rhizome yield. Highest yield was recorded under the treatment receiving 30 kg $FeSO_4$ ha^{-1} as basal (44.3 and 25.2 t ha^{-1}) in both the years which was significantly superior to all other treatments. Zinc application at 15 kg $ZnSO_4$ ha^{-1} had also influenced the rhizome yield significantly registering 15 per cent increase yield over control in both years (35.7 and 23.3 t ha^{-1}). Application of zinc at higher levels of (30 kg $ZnSO_4$ ha^{-1}) showed deleterious effect on the yield attributes. While, foliar application had no effect on the rhizome yield and its attributes.

Thamburaj (1991) opined that soil application of $FeSO_4$ at 30 kg ha^{-1} recorded maximum yield of rhizomes accounting for 24 per cent increase over control followed by foliar spray of 0.5 per cent of $FeSO_4$ during third, fourth and fifth months which recorded an yielded an yield of 23 t ha^{-1} of fresh rhizomes.

Chandra *et al.* (1997) observed Mg deficiency in turmeric cv.RCT-1 grown in acidic soils of Meghalaya, India. Four concentrations of MgSO4 (0, 0.7, 1.4 and 2.1 %) were sprayed on foliage at 50 days after planting and two types of planting materials (mother and finger rhizomes) were used. $MgSO_4$ and planting material type affected growth and yield attributes. Rhizome yield increased with increasing concentrations of $MgSO_4$. $MgSO_4$ at 1.4 % produced significantly higher fresh rhizome yields than 0.7 % $MgSO_4$ or controls but significantly lower fresh rhizome yields than 2.1 % $MgSO_4$.The number of tillers and number of leaves per clump and rhizome yield were significantly higher when finger rhizomes were used as planting material.

A maximum of 21.4 t ha^{-1} rhizome yield was obtained with the combined application of 50 kg in each of ferrous sulphate and zinc sulphate per hectare followed by 1.0 per cent ferrous sulphate and 0.5 per cent zinc sulphate foliar sprays at three stages namely at 2nd, 3rd and 4th month of crop growth period, as against 12.4 t ha^{-1} recorded in the control plots. Ferrous sulphate 50 kg and zinc