Internat. J. Agric. Sci. Vol.2 No.1 January 2006 : 241-243

The Effect Of Micro-Nutrient On The Growth And Yield Of Turmeric Under Different Shade Conditions In Mango Orchard

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ABSTRACT

A study was conducted to observe the effect of graded doses of copper (0, 8,16,24 kg copper sulphate/ha) and boron (0,10,20,30 kg borax/ha) as basal application on vegetative growth and rhizome yield of turmeric variety Azad haldi-1 grown under heavy shade and partial shade in mango orchard. Results revealed that application of copper sulphate @ 16kg/ha and borax @ 20kg/ha increased the vegetative growth, rhizome weight and rhizome yield of turmeric under both heavy and partial shade condition. However, under partial shade condition copper and boron performed better in terms of vegetative growth and yield of turmeric than the under heavy shade of mango orchard.

INTRODUCTION

Turmeric (*Curcuma longa)* is an annual and important commercial crop grown as condiment in India. It is mainly grown in A.P., Orisa, West Bengal, Tamil nadu, Karnataka and Kerala. It is also grown in M.P., Maharashtra, U.P. etc. Recently its cultivation has been started in Shades under orchards.Some mythological deterrents are adhered to it that limit its area expansion. The soil and climate are the two major determinants deciding the success or failure of crop in a given location. It needs proper and sufficient inputs for better results. Informations regarding the use of copper and boron in turmeric when grown under heavy and partial shade of orchard is meagre.

For assessing the effect of copper and boron on vegetative growth, rhizome yield and net return of turmeric when grown under heavy and partial shade of mango orchard, the present experiment was under taken for two consecutive crop seasons of. *kharif* 2003-04 and *kharif* 2004-05 at K.V.K. Farm, Raebareli.

MATERIALS AND METHODS

An experiment on the "Studies on the effect of micro-nutrient on the growth and yield of turmeric (variety Azad haldi-1)under different shade conditions in mango orchard" was conducted during *kharif* season of 2003-04 and 2004-05 at KVK farm, Raebareli.(C.S. Azad university of Agriculture and Technology, Kanpur). The soil was sandy loam with pH 7.8. The crop was grown as per recommended package of practices. The crop was sown in the month of June and harvested in February- March during both the years The N:P:K was applied @ 80:80:100 kg/ha along with graded doses of Micro-nutrients (Copper and Boron). Four levels each of copper (0,8,16,24 kg copper sulphate/ha) and boron (0,10,20,30 kg borax/ha) were applied as basal under heavy and partial shade conditions in mango orchard in Randomized Block Design with four replications. The plot size of each treatment was 3.5 metre x 3.0 metre.

The observation on the plant height(cm), leaf area (length x width in cm), number of leaves/plant, branchlets in rhizomes, rhizome weight/plant (g) and rhizome yield (q/ha) were recorded. The data collected were pooled and analyzed. Economics (Net return and B:C ratio) of each treatment was calculated on the basis of prevailing market prices of inputs and output (fresh turmeric rhizomes).

RESULTS AND DISCUSSION

It is revealed from the study that the turmeric crop performed better under partial shade in comparison to heavy shade. Application of Boron was found more beneficial than Copper. The basal application of copper up to 16 kg copper sulphate/ha increased the growth attributes *viz* plant height, leaf area, No. of leaves/plant (Table-1) and various yield attributes *viz* branchlet in rhizome, rhizome weight/plant and yield/ha (Table-2) in both heavy and partial shade of mango orchard.

The maximum increase in plant height of 95.64 cm under heavy shade and 99.64 cm under partial shade was brought out with 16 kg/ha copper sulphate. The yield per plant ranged from 99.62 g to 115.60 g under heavy shade and 122.62g to 135.34g under partial shade. The maximum

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