Research Paper

An Asian Journal of Soil Science

(Vol. 5 No. 2 (December, 2010) : 402-405

Received : October, 2010; Accepted : December, 2010

Response of sulphur and micronutrients (Zn and Fe) on yield and available nutrients of safflower (*Carthamus tinctorius* L.)

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ABSTRACT

A field experiment was carried out to study the effect of sulphur, zinc and iron on yield and available nutrients of safflower on Vertisol at the Main Agricultural Research Station, University of Agricultural Sciences, Dharwad, during *Rabi* season 2002-03. The results indicated that application of 30 kg S per ha revealed the yield components *viz.*, number of capsules per plant, seed weight per head, 1000-seed weight and the lowest available N, P, K, Fe and Zn content was recorded in treatments receiving 30 kg S per ha. Whereas, its availability was the highest in control. The combination of 30 kg S per ha along with Fe + Zn foliar spray recorded the highest yield and lowest available N, P, K, Fe and Zn content in soil and it was significantly lower over 20 kg S per ha + Fe + Zn foliar spray, 10 kg S per ha + Fe+ Zn foliar spray and control. However, the highest available sulphur content was recorded in the treatment receiving 30 kg S per ha, but the lowest available sulphur content registered in control.

Ravi, S., Channal, H.T. and Kumar, G. Shailendra (2010). Response of sulphur and micronutrients (Zn and Fe) on yield and available nutrients of safflower (*Carthamus tinctorius* L.). *Asian J. Soil Sci.*, **5**(2): 402-405

Key words : Sulphur, Zinc, Iron, Safflower

INTRODUCTION

Safflower (*Carthamus tinctorius* L.) is an important oilseed crop of the world. In India, it is grown in winter season in the Deccan *Rabi* zone. It contains about 36 per cent of oil, which accounted for about 8 per cent of the value of total agriculture produce. It contains 72 per cent linolenic acid, the factor which reduces blood cholesterol. Moreover, due to high content of unsaturated fatty acids and it is an excellent drying oil for use in paints and varnishes. Recently, scant attention was paid to the importance of secondary and micronutrients in plant nutrition. The deficiency of secondary and micronutrients is wide spread in many parts of the country due to cultivation of high yielding varieties, intensive agriculture and increasing use of sulphur free fertilizer in large quantities with concomitant decrease in use of organic manures, which necessitate rational application of these elements as they have becoming limiting factor for obtaining higher yields of several crops.

MATERIALS AND METHODS

A field experiment was conducted on a Vertisol to study the effect of sulphur, zinc and iron nutrition on growth, yield and certain quality parameters of safflower under irrigated conditions during *Rabi* 2002-03 at Main Agricultural Research Station, University of Agricultural Sciences, Dharwad (Karnataka). The treatments consisted of levels of sulphur (0, 10, 20 and 30 kg S/ha) and their micronutrients (Zn and Fe). Where, sulphur applied in the form of ammonium sulphate and zinc and iron in the form of zinc chloride and ferric chloride, respectively.

The experiment was laid out in a randomized block design having thirteen treatment and three replications.

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