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SPRAY SCHEDULE OF MULTIMICRONUTRIENTS TO OVERCOME CHLOROSIS IN GROUNDNUT

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SUMMARY

Field experiments were conducted to study the effects of foliar sprays of multimicronutrients on recovery from chlorosis and yield losses in groundnuts. The foliar application of iron (0.5%) aqueous solution of iron sulphate), and multimicronutrients (0.5% iron sulphate, 0.2% zinc shlphate, 0.2% manganous suphate, 0.05% copper sulphate, 0.05% boric acid and 0.01% sodium molybdate) caused regreening of chlorotic leaves, increased chlorophyll contents and pod and haulm yields significantly.

INTRODUCTION

The chlorosis is a major problem in groundnut as it is grown on calcareous soil which causes mild to severe yield losses depending upon its intensity (Singh *et al* 1987, a, b, 1992; Kannan, 1984; Papastylianou, 1990; Hartzook, 1975; Wellace, 1991). This chlorosis is mainly due to the deficiency of iron, but recently the occurance of chlorosis due to other micronutrients also has been noticed (Singh *et al;* 1990). The foliar sprays of individual micronutrients are very common to check such deficiencies. But in the case when chlorosis is due to more than one micrountrient and the symptoms often are not very clear due to superimposition of the expression of symptoms of one nutrient on the other the spray of individual micronutrient is not helpful. Hence the present investigations were conducted.

MATERIALS AND METHODS

A field experiment was conducted at the Research Farm of the National Research Centre for Groundnut, Junagadh on black calcareous clay soil having 15% Ca CO3, 0.7% organic carbon, 4.6 ppm available P (0 l sen P), 12 ppm S, 2.7, 6.2, 0.45 and 1.1 ppm DTPA extractable Fe, Mn, Zn and Cu, 0.47 mmhos EC and 7.6 p^H. Five groundnut varieties J 11, GAUG 1, GG 2, JL 24 and ICGS 11 showing different degree of chlorosis (Singh and Chaudhari, 1991) on calcareous soil were selected for this study. The treatments were T_1 control; T_2, foliar application of iron and T_3, foliar application of multimicrountrients. In case fo T_2 the iron (0.5% aqueous solution of iron sulphate) was applied on the foliage at 30,50 and 70 DAE (days after emergence) at the rate of 500, 500 and 1000 1/ha, respectively and the total amount of iron applied was 2 kg Fe/ha. In case of T_3, the mixed aqueous solution of 0.5% iron sulphate, 0.2% manganous sulphate, 0.2% zinc sulphate, 0.05% copper sulphate, 0.05% boric acid and 0.01% sodium molybdate was applied on the foliage thrice at 30, 50 and 70 DAE at the rate of 500, 500 and 1000 1/ha, respectively. The total amount of nutrients applied by this treatment were 2.0, 1.3 and 0.91 kg/ha of Fe, Mn and Zn and 252, 174 and 79 g/ha of Cu, B and Mo, respectively.

The experiment was laid out in a factorial randomised block design by taking varieties in the main plots and treatment in the sub plots with three replications. The field was prepared and 10 cm deep furrows were opened with harrow distanced at 45 cm. The field was divided into 45 small plots of 25 m^2 (5x 5m^2). Diammonium phosphate at 100 kg/ha and muriate of potash at 40 kg/ha were applied in the furrows and mixed with the soil. The groundnut seeds were sown at 10 cm distance in the furrows and covered with soil. The irrigation, intercultural practices and plant protection measures were taken whenever required during the cropping season.

The micronutrients were applied as spray on the foliage at 30, 50 and 70 DAE. In case of control equivalent amount of water was sprayed. The extent of chlorosis was