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Effect of different sources and levels of sulphur on yield and quality of soybean under inceptisol of middle Gujarat

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ABSTRACT

The results of field experiment conducted at Agronomy Farm, B.A. College of Agriculture, Anand Agricultural University, Anand revealed that sulphur showed the significant effect on quality and yield of soybean in Iceptisol, irrespective of sources, oil and protein content in soybean grain was significantly higher at application of 40 kg S ha^{-1} in form of gypsum. The grain and straw yield also significantly increased due to same dose of sulphur, where oil and protein content were recorded 22.7 and 35.9 per cent, respectively.

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Key words : Oil, Protein, Yield, Soybean, Sulphur

INTRODUCTION

Soybean a well known oilseed and pulse crop. It is the richest and cheapest source of high quality protein, minerals, vitamins and fats. Soybean is called as boom of malnourished India because of its high nutritive value mainly due to its high protein (40%) and oil (20%). Oilseeds crop require more sulphur than other crop. It is being recognized as the fourth major plant nutrient after N, P and K. It is well known for its role in the synthesis of cystine, cysteine and metnionine. It also requires for the formation of chlorophyll, vitamin, glycosides and ferrodoxins. Sulphur is also associated with the metabolism of carbohydrates and oils.

MATERIALS AND METHODS

The experiment was conducted at Agronomy Farm, B.A. College of Agriculture, Anand Agricultural University, Anand during season 2008-09. The soil was loamy sand in texture having the available N, P_2O_5 and K_2O of 190.5, 44.5 and 219.5 kg ha^{-1}, respectively. The sulphur level of the experimental site was 8.50 kg ha^{-1}, which was quite below the critical limit. The treatments included three sulphur sources *viz.*, gypsum, elemental sulphur and SSP and three sulphur levels *viz.*, 0, 20 and 40 kg ha^{-1}. The recommended dose of 30 kg N and 60 kg P_2O_5 ha^{-1} were applied. The experiment was laid out in factorial randomized block design and replicated four times. The ruling soybean cultivar Gujarat soybean 2 was used for the experiment. The ground seed samples were used for determination of oil content by NMR by Tiwari *et al.*, 1974, while the protein was calculated by 6.25 factors with estimated per cent nitrogen in grain Sadasivam and Manikam, (1992). The bio-metric data of yield and quality were recorded and analyzed statistically.

RESULTS AND DISCUSSION

The results obtained from the present investigation as well as relevant discussion have been presented under following heads (Table 1 and Fig. 1 to 4).

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