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Research Article

Role of sulton application on different crops under climate change

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Summary

A study was carried out for two consecutive years during rainy and winter seasons of 2009-10 and 2010-11 on S deficit soils of different districts, situated in the area juridication of C.S. Azad University of Agriculture and Technology, Kanpur. The main objective was to find out the suitable dose of sulton for enhancing the production of different crops and simulate the modeling of sulton use based on watershed technology. The summarized results of two years innovative - cum- adaptive trials indicate that wheat responded to the application of 35 kg sulton /ha, which increased the grain yield by 8.80 q/ha or 20.70 per cent over control. Sesamum responded upto use of 35 kg sulton/ha, which gave higher yield of 1.15 q/ha or 25.55 per cent over control. The linear increase was recorded in pod yield of groundnut upto higher tested dose of 55 kg sulton/ ha, which increased the pod yield by 5.80 q/ha or 28.30 per cent over control. The pulse crops responded upto use of 25 kg sulton/ha. The application of sulton @ 25 kg/ha enhanced the kernel yield by 34.60 per cent of arhar, 31.25 per cent of urd, 25.05 per cent of gram, 25.10 per cent of field pea and 21.85 per cent of lentil as compared to control under moisture stress condition. Tuber yield of potato increased by 20.35 per cent with the use of 50 kg sulton/ ha over control. Application of 70 kg sulton/ ha increased bulb yield of onion by 22.43 per cent and garlic by 21.52 per cent over conventional systems of their cultivation. Therefore, integration of sulton with RDF of different crops can be done for enhancing the production on S deficit soils.

Key words : Integration of sulton, Kernel yield, NEAIS saudi arbia, S deficit soils, Simulation model, Watershed technology

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Introduction

Plants absorb a large number of elements from the soil and other sources during their growth and development. But all these elements are not essential for plant growth. Only sixteen elements are found to be essential in plant nutrition. Among these nutrients NPK are called as major nutrients and calcium, magnesium and sulphur as secondary nutrients. Nitrogen, phosphorus, potassium, calcium, magnesium and sulphur are used by plants in large quantities; therefore, they are designated as macro nutrients. The major nutrients *i.e.*, nitrogen, phosphorus and potassium are manufactured and supplied in large quantity by fertilizer industries in the form of commercial fertilizer to the cultivators. Calcium, magnesium and sulphur are some time called secondary nutrients due to their secondary importance to the manufacturers of NPK fertilizers. Chambal Fertilizers and Chemicals Ltd., Kota, Rajasthan has given much importance to the secondary nutrients and also started marketing of sulphur from NEAIS, Saudi Arabia. NEAIS, Saudi Arabia has given the name Sulton, which contain 90 per cent sulphur and 10 per cent bentonite in from of granular fertilizer.

The fertilizer use pattern is heavily biased in favour of sulphur free fertilizers in spite of the fact the sulphur deficiencies are being increasingly reported from many soils of Uttar Pradesh, while S is being increasingly recognized as the fourth major plant nutrients in addition to N,phosphorus and K because it helps in chlorophyll formation and encourages vegetative plant growth, constitute many proteins, enzymes, volatile compounds, helps in the reduction-oxidation system in respiration, increases root growth, stimulates seed formation and promotes nodule formation on roots of legumes.