



Direct and residual effect of sulphur on dry matter production of rice (*Oryza sativa* L.) in rice-rice sequence in vertisol of Karnataka

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ABSTRACT

Field experiments were conducted at Agriculture Research Station, Gangavati (Dist. Koppal) during *Rabi*/summer and *Kharif* seasons of 2007 to study the direct and residual effect of sulphur on dry matter production of rice in rice-rice cropping sequence. Results revealed that out of different sources and levels of sulphur treatments, the treatment receiving RDF + FYM (10 t/ha) + ZnSO₄ (20 kg/ha) + 50.0 kg sulphur ha⁻¹ (factomphos) registered the highest dry matter in both direct and residual rice at active tillering (41.57 and 40.39 q ha⁻¹), panicle initiation (52.39 and 49.40 q ha⁻¹), grain filling stage (74.14 and 66.99 q ha⁻¹) and at harvest (54.72 and 49.90 q ha⁻¹) in straw and 49.09 and 44.64 q ha⁻¹ in grain), respectively.

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Key words : Sulphur, Rice-rice sequence, Vertisol, Factomphos

INTRODUCTION

Rice is extensively grown in rice-rice cropping sequence as a major crop in Tungabhadra irrigation command in zone-3 of Karnataka. The productivity and quality of rice depend on environmental conditions and the agronomic management practices of the area. After nitrogen, phosphorus and potassium, sulphur is the fourth nutrient, whose deficiency is widespread in India. Sulphur absorbed as an anion is considered as the quality and quantity limiting nutrient for rice. It is increasingly being recognized as one of the major plant nutrients. Use of high analysis S-free fertilizers such as diammonium phosphate, urea, muriate of potash and flooding of land causes S to reduced condition for a considerable period of time resulting in decreased availability of S to rice. With this background, the present investigation was carried out at Agricultural Research Station, Gangavati (Dist. Koppal) to study the direct and residual effects of sulphur nutrition on dry matter production of rice (cv. IR-

64) grown in rice-rice sequence.

MATERIALS AND METHODS

Field experiments were conducted at Agriculture Research Station, Gangavati, during *Rabi*/summer and *Kharif* seasons of 2007 to investigate the direct and residual effects of applied sulphur on dry matter production of rice (cv. IR-64). Composite soil sample from 0-20 cm depth was collected from experimental site before start of the experiment and analyzed for physical and chemical characteristics by employing standard methods. The soil of the experimental site was medium black, clay and had organic carbon - 4.78 g kg⁻¹, EC - 0.18 dS m⁻¹ and pH - 8.12. The available N, P, K and S were 172.3, 14.9, 312.8 and 11.2 kg ha⁻¹, respectively. DTPA extractable micronutrients were 0.58, 2.68, 7.67 and 9.85 mg kg⁻¹ of Zn, Cu, Fe and Mn, respectively. The experiment was laid out in a randomized block design (RBD) with three replications and eight treatments consisting of T₁ : RDF,

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