

Effect of integrated nutrient management and *in situ* moisture conservation studies in *Kharif* sorghum

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ABSTRACT

Field trials were carried out to study the effect of integrated nutrient management and moisture conservation studies in *Kharif* sorghum. The result revealed during 2007-08 years 50% RDF+2.5 t FYM ha⁻¹+ *Azotobacter* + P.S.B. and Sowing at 45 cm and opening furrow (3WAS) were found efficient to achieve significantly maximum grain and fodder yield as that of other fertilizer combinations and moisture conservation techniques. It has been also observed that sorghum attained more height, no. of leaves, leaf area and dry matter produced.

KEY WORDS : Sorghum, integrated nutrient management and moisture conservation techniques

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INTRODUCTION

Sorghum is one of the major crops of semi-arid tropic as well as in several parts of the world. In Maharashtra it is predominant crop occupying 60% of the total area and productivity in the country. However yield is low *i.e.* 500 kg ha⁻¹. Constraints for low productivity are identified as lack of improved high yielding cultivars, delayed sowing, low fertilizers use and improper adoption of management techniques. The cultivation of sorghum is mostly confined to vertisols of Maharashtra and Karnataka which are poor in nitrogen. Therefore present objectives of this study was to know the effect of integrated nutrient management and moisture conservation techniques.

The large scale production through the application of chemical fertilizer is the base of green revolution. But applications of higher quality of fertilizer without considering the crop requirement adversely affect the microbial population and soil health (Das *et al.*, 1997). About 27 per cent of India's population and 20 per cent of

world population consume this millet as their principal food (Bhalerao, 1999).

MATERIALS AND METHODS

The investigation was conducted at the sorghum research unit, Dr. P.D.K.V. Akola, adopting Factorial Randomized Block Design with three replications during rainy (*Kharif*) season of 2007. The trials consisted two factors *viz.*, *in situ* moisture conservation practices consisted (L₁) flat bed sowing, (L₂) sowing at 45cm and opening furrow (3WAS) (L₃), paired planting at 30-60 cm and opening furrow (3WAS) and (L₄) paired planting at 30-60 cm with one row of green gram.

Nutrient management practices consisted (N₁) 100% RDF (80:40:40 kg NPK ha⁻¹), (N₂) FYM @ 5.0 t ha⁻¹ + *Azotobacter* + PSB and (N₃) 50% RDF + 2.5 t FYM ha⁻¹ + *Azotobacter* + PSB. The sorghum hybrid variety CSH-14 was sown in rows as per treatment by using seed rate 7 kg ha⁻¹ and recommended dose was given as per treatment to the plots. The soil was clay loam having pH 7.4, medium for organic carbon (0.50 %), available N (250 kg ha⁻¹), Phosphorus (24 kg P₂O₅ ha⁻¹) and high available potassium (267 kg K₂O ha⁻¹).

RESULTS AND DISCUSSION

The results obtained from the present investigation as well as relevant discussion have been presented under following heads :

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