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Research Article

Yield and economics of soybean influenced by integrated nutrient management practices

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ABSTRACT : Yield and economics of soybean [*Glycine max* (L.) Merril] influenced by integrated nutrient management practices was assessed in a field experiment carried out on loamy sand soil at Agriculture Research Station Farm Derol, Anand Agricultural University, Anand, during *Kharif* 2010. Field experiment comprised of sixteen treatment combinations comprising four different organic manures *i.e.* No (No organic), CC (Castor cake @ 0.5 t ha^{-1}), VC (vermicompost @ 1 t ha^{-1}), and FYM (FYM @ 5 t ha^{-1}) and four different levels inorganic fertilizer *i.e.* F_0 (No RDF), F_1 (50% RDF), F_2 (75% RDF), F_3 (100% RDF) were tried in Randomized Block Design with Factorial concept and replicated four times. The FYM applied @ 5 t ha^{-1} recorded maximum seed yield (1,908 kg ha^{-1}), haulm yield (3,588 kg ha^{-1}), gross realization, net realization with BCR than remaining treatments. Application of inorganic fertilizer @ 100 % RDF (*i.e.* 60 kg N: 30 P_2O_5: 0kg K_2O) recorded significantly higher seed yield (1,868 kg ha^{-1}), haulm yield (3,537 kg ha^{-1}), gross realization, gross realization and BCR. Significantly the higher seed yield, highest net realization of Rs. 30,815 ha^{-1} with BCR 3.21 was recorded under the combination of FYM + 100 per cent RDF (*i.e* FYM @ 5 t ha^{-1} + 100 % RDF).

KEY WORDS : Economics, Inorganic, Organic, Yield, Integrated nutrient management, Soybean

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INTRODUCTION

Soybean [*Glycine max* (L.) Merill] is known as soja bean, soya bean, chinese pea and manchurian bean which belongs to family Fabaceae, sub family Faboideae and has Eastern Asian origin. This legume is making straight way in Indian agriculture to meet protein and oil requirement. It is outstanding in its nutritive value with enhanced protein and oil content and is also rich in vitamins, minerals, salts and other essential amino acids.

Madhya Pradesh, Maharashtra, Rajasthan, Andhra Pradesh, Karnataka and Chhatisgarh are the leading soybean growing states with an area of 53.0, 30.3, 7.1, 2.3.1.3 lakh ha, respectively. Soybean production has not only gained the vital importance in the Indian agriculture, but also plays an important role in oil economy of India as it contributes more than 10 per cent of total foreign revenue (Anonymous, 2005).

Different organic manures like castor cake, vermicompost, and FYM which resulted in greater assimilation of photosynthates and their accumulation in yield components. Careful management of nutrient resources *i.e.* organic manures and inorganic fertilizers is a application of pre-requisite for sustainable crop production in soybean. For higher production and better soil health the combined organic manures and inorganic fertilizers is required. In order to check, whether it is profitable to reduce dose of chemical fertilizers with combination

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