

Research Paper

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Effect of integrated nutrient management on growth and yield of soybean [*Glycine max.* (L.) Merril.]

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ABSTRACT : An agronomic investigation entitled integrated nutrient management in soybean was conducted at experimental farm, Department of Agronomy, College of Agriculture, Marathwada Krishi Vidyapeeth, Parbhani, during the *Kharif*, 2011. The highest seed, straw and biological yields was recorded with the treatment of 100 % RDF + *Rhizobium* + PSB + sulphur @ 25 kg ha⁻¹ + vermicompost @ 3t ha⁻¹ (T₇) and it was at par with 100 % RDF + *Rhizobium* + PSB + sulphur @ 25kg ha⁻¹ + FYM @ 5t ha⁻¹ (T₄) treatments and produced significantly higher seed, straw yield and biological yield than rest of the treatments.

Key Words : Integrated nutrient management, Growth, Yield, Soybean, *Rhizobium*

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Soybean is finding its place in policy agenda of industrial, medicinal and food sector of India due to wide spectrum of its chemical composition. The dry seed of soybean is rich source of phosphorus, potassium, sulphur, iron and vitamin A, B, D and oil in unsaturated fatty acid with the anticholesterol principle. While its sprout contains appreciable amount of vitamin C which is generally obtained from fresh fruits and vegetables. Therefore, soybean is frequently referred as poor man's meat to vegetarians due to its high protein content (Singh, 2005).

The legumes are known to increase the soil fertility particularly the soil nitrogen and consequently enhance the soil productivity of succeeding cereal crop (Nelson, 1989). Adequate fertilization is most to increase the soybean productivity.

Integrated fertility management using chemical fertilizer and bio-fertilizers along with manures will facilitate restoration, enhancement and maintenance of soil productivity at high level which in turn will ensure profitable and intensive agriculture (Kumaraswamy, 2003). In light of above a field experiment on integrated nutrient management in soybean was conducted at department of agronomy, Marathwada Krishi Vidyapeeth, Parbhani, with the an objective to study the nutrient requirement of soybean for increasing productivity and to study the economics of integrated nutrient management in soybean.

RESEARCH PROCEDURE

The field experiment was conducted during *Kharif*, 2011 at the Experimental Farm, Department of Agronomy, College of Agriculture, Marathwada Krishi Vidyapeeth, Parbhani. The average annual precipitation is 900 mm with 70 rainy days. The present experiment was laid out in Randomized Block Design (RBD) with seven treatments replicated three times. The treatments were T₁ : RDF, T₂ : 50 % RDF + *Rhizobium* + PSB + sulphur @ 25kg ha⁻¹+FYM @ 5t ha⁻¹, T₃ : 75 % RDF + *Rhizobium* + PSB + sulphur @ 25 kg ha⁻¹ + FYM @ 5t ha⁻¹, T₄ : 100 % RDF + *Rhizobium* + PSB + sulphur @ 25kg ha⁻¹ + FYM @ 5t ha⁻¹, T₅ : 50 % RDF + *Rhizobium* + PSB+ sulphur @ 25 kg ha⁻¹ + vermicompost @ 3t ha⁻¹, T₆ : 75 % RDF + *Rhizobium* + PSB+ sulphur @ 25 kg ha⁻¹ + vermicompost @3t ha⁻¹, T₇ : 100 % RDF + *Rhizobium* + PSB + sulphur @ 25 kg ha⁻¹ + vermicompost @ 3t ha⁻¹. The variety of sobean used for this trial was MAUS-71, sowing was done at spacing of 45 x 05cm². The gross and net plot size was 5.4 x 4.5m² and 4.5 x 3.6 m², respectively. Sowing of the experiment was done on 10th July, 2011. The recommended plant protection measures were followed.

RESEARCH ANALYSIS AND REASONING

The results of the present study as well as relevant discussions have been presented under following sub heads: