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Effect of integrated nutrient management on growth, yield and economics of pearl millet

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ABSTRACT : A field experiment was carried out during *kharif* seasons of 2013 at the Research Farm, College of Agriculture, Gwalior, Madhya Pradesh to find out the suitable INM combinations for better growth and yield of pearlmillet. The experiment was laid out in randomized block design with three replications consisting eight INM treatments *viz.* T_1 :RDF (Recommended dose of fertilizer), T_2 :RDF + *Azotobacter* + PSB inoculation, T_3 :RDF + Zinc sulphate @ 25 kg/ha + *Azotobacter* + PSB inoculation, T_4 :RDF + 1 gm Ammo. Molybdate/ kg seed + Azotobacter + PSB inoculation, T_5 :RDF + 5 kg borax/ha + *Azotobacter* + PSB inoculation, T_6 :RDF + $FeSO_4$ @ 40 kg/ha + *Azotobacter* + PSB inoculation, T_7 :RDF + Zinc sulphate @ 25 kg/ha + $FeSO_4$ @ 40 kg/ha and T_8 RDF + 5 t FYM/ha + *Azotobacter* + PSB inoculation. The results revealed that the RDF + $ZnSO_4$ @ 25 kg/ha + $FeSO_4$ @ 40 kg/ha (T_7) produced significantly higher plant height (248.7 cm) and grain yield (3750 kg/ha) over T_1, T_2, T_4 and T_5, which were closely followed by and at par with RDF + 5 t FYM/ha + *Azotobacter* + PSB, RDF + $FeSO_4$ @ 40 kg/ha + *Azotobacter* + PSB and RDF+ $ZnSO_4$ @ 25 kg/ha + *Azotobacter* + PSB. However, the test weight (12.83 g) and length of ear head (34.4 cm) was recorded significantly higher with application of RDF + 5 t FYM/ha + *Azotobacter* + PSB over T_1, T_2, and T_4, but at par with T_7, T_6 and T_3 treatments. The significantly higher stover yield (8175 kg/ha) was recorded with the RDF + $ZnSO_4$ @ 25 kg/ha + $FeSO_4$ @ 40 kg/ha over rest of the treatments except RDF + 5 t FYM/ha + *Azotobacter* + PSB. The harvest index was not influenced significantly by the different INM treatments. The highest net income (Rs. 18273/ha) was recorded with RDF + $ZnSO_4$ @ 25 kg/ha + $FeSO_4$ @ 40 kg/ha which was followed by RDF+ $ZnSO_4$ @ 25 kg/ha + *Azotobacter* + PSB (Rs. 18137/ha). However, the highest benefit cost ratio was recorded by RDF+ $ZnSO_4$ @ 25 kg/ha + *Azotobacter* + PSB (2.27).

Key Words : *Azotobacter*, INM, micronutrient, PSB, pearlmillet.