EFFECT OF OPTIMAL, SUB OPTIMAL AND INTEGRATED NUTRIENT MANAGEMENT ON GROWTH AND YIELD ATTRIBUTES OF RICE (*ORYZA SATIVA*) IN RICE-WHEAT CROPPING SYSTEM

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Abstract: The present investigation entitled "Effect of optimal, sub optimal and integrated nutrient management growth and yield attributes of rice (*Oryza sativa*) in rice-wheat cropping system" was carried out at the Research Cum Instructional Farm IGKV., Raipur (C.G.) during *kharif* season of 2010. The soil of experimental field was '*Inceptisols*' locally known as *Matasi*. It was neutral in reaction, low in nitrogen, medium in available phosphorus and potassium. The experiment was laid out in randomized block design with 12 treatments and 3 replications.

The treatments consisted of T_1 (No fertilizer, no organic manure, control), T_2 (50% recommended NPK dose through fertilizers, 40:30:20), T_3 (50% recommended NPK dose through fertilizers), T_4 (75% recommended NPK dose through fertilizers), T_5 (100% recommended NPK dose through fertilizers, 80:60:40), T_6 (50% recommended NPK dose through fertilizers +50%N through farmyard manure) and T_7 (75% recommended NPK dose through fertilizers +25%N through farmyard manure). T_8 (50% recommended NPK dose through fertilizers +50% N through composted rice residue). T_9 (75% recommended NPK dose through fertilizers +25% N through composted rice residue). T_{10} (50% recommended NPK dose through fertilizers +50% N through green manure). T_{11} (75% recommended NPK dose through fertilizers +25% N through green manure). T_{12} (Conventional farmer's practice (50:30:20) Table (i). The results revealed that amongst the different optimal, sub-optimal and integrated nutrient management practices using green manure, farmyard manure and chemical fertilizers, T_{10} consisting of 50% RDF + 50% N through green manuring recorded the highest growth and yield attributing characters, grain yield of rice (56.19 q ha^{-1}) and maximum net return (Rs. 46,117 ha^{-1}). Application of 100% RDF (80:60:40 kg NPK ha^{-1}) also proved superior over other integrated nutrient management systems consisting farmyard manure and rice residues for yield (55.19 q ha^{-1}), net return (Rs. 44,962 ha^{-1}) and B:C ratio (2.52). Sub-optimal doses of nutrients failed to provide considerable yield advantage and build-up of nutrients in soil as compared to optimal level or integrated nutrient management options

Keywords: Rice, optimal, sub optimal and integrated nutrient management and yield attributes

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