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Effect of split application of NPK fertility on nutrient uptake by hybrid rice (Oryza sativa L.) and soil health

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SUMMARY: The experiment was conducted during Kharif season of 2011-12 and 2012-13 to study the effect of split application of NPK on fertilizer use efficiency, nutrient availability and yield of hybrid rice in partially reclaimed salt affected soil at Student Instructional Farm of Narendra Deva University of Agriculture and Technology, Kumarganj, Faizabad, U.P. The experiment was laid out in RBD comprising of ten treatments with three replication as T, control, T, NPK (100% RDF) Recommended practices (RP), T₂ NPK (100% RDF) as N 1/3(7DAT+MT+PI) P and K basal, T₄ NPK (100% RDF) N and K recommended P (3/4 B+1/3 PI), T₂ NPK (100% RDF) N 1/3(7DAT+MT+PI) K (3/4 B+1/3 PI) and P RP, T₂ NPK (100% RDF) N 1/3(7DAT+MT+PI) P and K 1/3 (B+MT+PI), T, NPK (75 % RDF) N 1/3(7DAT+MT+PI) P and K basal, T₄NPK (75% RDF) N and K RP and P 1/3 (B+MT+PI), T₆NPK (75% RDF) N and P RP and K 1/3 (B+MT+PI) and T₁₀NPK (75% RDF) N1/3 (7DAT+MT+PI) P and K1/3 (B+MT+PI) the hybrid rice variety Arize-6444 was used for the experiment. The split application of NPK (100% RDF) N 1/3(7DAT+MT+ PI) P and K 1/3 (B + MT+PI) produced highest growth parameters, yield attributing parameters grain (7.35 t ha^{-1}) , straw (9.70 t ha^{-1}) yield and uptake of NPK $(172.78, 39.04 \text{ and } 153.68 \text{ kg ha}^{-1})$ ¹) was significantly superior over the rest of all treatments. Significantly at par, yield attributes gain yield, nutrient and protein content and nutrient uptake were recorded by T_{10} (75% NPK- RDF with split application) and T₂(100% NPK- RDF applied as recommended practices). This way 25% NPK could be saved by spliting NPK without loosing yield.

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