

CUMULATIVE AND RESIDUAL EFFECT OF YIELD AND NUTRIENT UPTAKE BY RICE UNDER GERANIUM (*PELARGONIUM GRAVEOLENS*) –RICE (*ORYZA SATIVA*) CROPPING SEQUENCE AS INFLUENCED BY LEVELS OF PHOSPHORUS AND ZINC

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Abstract : A field experiment was conducted at Central Institute of Medicinal and Aromatic Plant, Lucknow to influence the cumulative and residual effects of phosphorus and zinc source of nutrient uptake by rice under geranium-rice cropping sequence. The 18 treatment combination consisted of 3 cropping system viz. geranium paired sole (40/80cm.) garlic sole (20×10cm.), geranium paired + garlic (1:4), three levels of phosphorus (0, 30 & 60 Kg. P₂O₅ ha⁻¹) and 2 levels of zinc (0 and 25kg. Zn SO₄ ha⁻¹) were evaluated in a factorial RBD design with three replication. Higher uptake of P by rice in grain in the plots of 80kg P₂O₅ ha⁻¹ supplied to geranium clearly indicate that there is a residual effect of P on the P uptake by succeeding crop. Hence, there is a net saving of 30kg P₂O₅ ha⁻¹ to achieve similar yield level to that of 30kg P₂O₅ ha⁻¹ applied in the plots of geranium received 40kg P₂O₅ ha⁻¹. P uptake by rice in grain was also enhanced upto 25kg ZnSO₄ ha⁻¹ applied over 30kg ZnSO₄ ha⁻¹ supplied to geranium crop. Residual effect of Zn on uptake of P followed the same trend to that of P – uptake under cumulative effect. Zn uptake by rice in grain increased significantly upto 30kg P₂O₅ ha⁻¹ in the cumulative treatment, However, under the residual treatment the uptake of Zn by rice in grain increased upto 80kg P₂O₅ ha⁻¹ applied to previous crop. Clearly indicate that higher doses of P may decrease the uptake of Zn by rice in grain. The net profit of rice after geranium paired system (Rs. 13,224.1 ha⁻¹) it was at par with rice after garlic sole (Rs. 13,758.1 ha⁻¹) system. Thus Geranium – rice sequence proved economical.

Keywords: Rice, Medicinal & Aromatic plants, Phosphorus, Zinc

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