RESEARCH ARTICLE

SITE SPECIFIC NUTRIENT MANAGEMENT AND NUTRIENT REMOVAL BY BASMATI RICE AND PHYSICO-CHEMICAL PROPERTIES OF SOIL

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Abstract: The present investigation was carried out at Crop Research Centre, Chirori of Sardar Vallabhbhai Patel University of Agriculture and Technology, Meerut (U.P.) with eleven different treatments viz; T_1(Recommended NPK), T_2 (Recommended NP), T_3 (Recommended NK), T_4 (Recommended PK), T_5 (Recommended NPK+ wheat residue @ 5 ton ha^{-1}), T_6 (Recommended NPK + FYM @ 10 ton ha^{-1}), T_7 (SSNM 100 : 60 : 60: 25 : 30 : 5 i.e. N P K Zn S B), T_8 (SSNM-P), T_9 (SSNM-K), T_{10} (SSNM-K+ wheat residue @ 5 ton ha^{-1}) and T_{11} (SSNM + wheat residue @ 5 ton ha^{-1}) in three replications and in Randomized Block Design. The rice variety Pusa basmati 1509 was grown and nutrient uptake and soil properties as influenced by different treatments were assessed. Results obtained from the study revealed that with the use of balanced inorganic fertilizer alone or in combination with organic fertilizer, physical properties of soil due to improvement in OC gkg^{-1} through more biomass addition in the soil. Significant reduction in BD was noticed where more biomass was added into the soil. Treatments having integration of sources/ nutrients (T_6, T_7 and T_{11}) distinctly showed the improvement in OC %, availability of N, P, K, S, Zn, B, Fe and led to better soil environment over T_4. Uptake of N, P, K, S, Zn, B and Fe by rice under different treatments was also found to be significantly higher than T_4. The grain yield of rice was significantly higher in combined use of organic & inorganic fertilizer treated plot than only inorganic one. However, no significant variation was observed in the grain yield where N, P, K + wheat residue, N, P, K + FYM and SSNM package + wheat residue treated plots.

Keywords: Basmati rice, Nutrient removal, Physico-chemical properties of soil

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