



Comparative Assessment of Available Soil Nutrients under Different Tillage and Crop Residue Management Practices in Rice-Wheat Cropping System

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Soil is a natural resource providing numerous ecosystem services and provision of these services totally depends on soil health and its nutrient balance which is affected by different agricultural management practices. So it's very important to understand the effect of these practices on soil functioning. In the present study the effect of different tillage and crop residue management practices on available soil macro and micronutrients have been evaluated. To conduct the study, two treatments of farmer's practices have been taken. First is multiple tillage with complete burning of paddy residues (Conventional practice/T1) and second one is zero tillage with complete retention of paddy residues (Conservation practice/control). Samples were collected from two soil depths (0-5 and 5-15 cm) before and after burning of residues. Available soil phosphorous, available potassium, available SOC all were increased by 10%, 14.85%, 2.4% respectively at 0-5 cm depth in after residue burning samples as compare to before burning samples whereas available soil nitrogen, available micronutrients (Cu, Zn, Mn, Ni and Fe) and microbial biomass carbon (MBC) were found to be decreased in after burning samples as compare to before burning samples at same 0-5cm depth. Available P, available SOC, MBC, available potassium all were found to be 13.89%, 17.7%, 6.9% and 0.5% higher in control treatment as compare to T1 however micronutrient concentrations were decreased in control. The increase in some nutrient concentration due to burning of residues may be attributed to sudden increase in ash content however decrease in some parameters like MBC may be attributed to decrease in microbial population. Also the results signifies the positive impacts of conservation practices over conventional one.

Keywords: Residue management, Tillage, Available nutrients.