

Evaluation of Resource Conservation Technology (RCT) for Rice-Maize Cropping System In Eastern India

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Abstract Over the last 40 years, India has witnessed many revolutions among which green revolution is prominent one. In this revolution High Yielding Varieties (HYV) were applied with sufficient quantities of chemical fertilizers, irrigation water, plant protection measures with scientific crop husbandry practices for enhancing production. As a result, quality of production system i. e. soil health was deteriorated to a great extent and the cost of production increased exorbitantly. To overcome this problem, conservation agriculture was thought to be the right answer. One experiment was conducted on conservation agriculture in strip plot design with three replications for rice- maize cropping system in the research farm of Directorate of Water Management, Bhubaneswar. Main plot treatments were zero tillage(NT), minimum tillage(MT), conventional tillage(with flat bed sowing- CT1) and conventional tillage(ridge bed sowing- CT2). In sub plots three nutrient management options such as 100% NPK(F1), 50% NPK+ 50% N through FYM(F2) and), 50% NPK+ 50% N through Green Leaf Manuring- GLM(F3). During Kharif season rice was grown and in Rabi maize was grown following the recommended package of practices. In rice, both CT1(3.92 t/ha) and CT2 (3.50 t/ha) recorded significantly higher grain yield over NT(2.1 t/ha) and MT (2.60 t/ha) in initial years later on yield in NT and MT increased. Among the nutrient management practices, F1(3.4 t/ha) produced significantly higher grain yield over F2(2.8t/ha) and F3(2.7t/ha). Similar trend was observed in maize yield during Rabi season and CT2 registered highest grain yield of 4.12 t/ha. Soil organic carbon, a measure of soil health status was measured after the harvest of the crop and was found to be highest in NT(0.54%) followed by MT(0.51), CT1(0.48%) and CT2(0.47%). Similarly available soil moisture in percentage after harvest of rice was found to be highest in No till system (11.58) followed by Minimum tillage(10.90) , Conventional tillage1(10.0) and conventional tillage2(9.69).