

Sustaining the Productivity of Rice – Rice System: Innovative Resource Conservation Approaches

A experiment was conducted on sustaining the productivity of rice – rice system: innovative resource conservation approaches at cocotilla farm of ICAR. The results revealed that there was no significant effect of tillage on rice yield under thirty percent residue incorporation and with improved/ recommended nutrient management. Conventional Tillage + $N_{100} P_{18} K_{33.3}$ +30% residue incorporation (Recommended fertilizer practice) gave the highest yield, which was statistically at par with **Zero tillage** + $N_{100} P_{18} K_{33.3}$ + cellulose decomposing organism + 30% residue incorporation and was significantly superior over all other treatments. Residue incorporation had significant effect under conventional tillage with farmer's practice of fertilizer application. The incorporation of 30% residue with conventional tillage and farmer's practice of fertilizer application recorded significantly less yield as compared to Conventional Tillage + $N_{40} P_9$ + no residue incorporation. This showed that incorporation of residue without application of sufficient nutrient reduce the yield of rice due to immobilization of available nutrient in field (Table 1).

Table 1 Effect of tillage, nutrient management and residue management on productivity of boro rice

Treatment	Grain yield (t/ha)
Thirty percent residue incorporation only	3.03
Conventional Tillage + $N_{40} P_9$ + 30% residue incorporation (Farmers practice)	3.06
Conventional Tillage + $N_{40} P_9$ + no residue incorporation	3.31
Reduce Tillage + $N_{40} P_9$ + 30% residue incorporation	3.25
Conventional Tillage + $N_{100} P_{18} K_{33.3}$ + ³⁰ % residue incorporation (Recommended fertilizer practice)	3.66
Conventional Tillage +25% N through FYM and 75% N & rest of P & k through Inorganic fertilizer +30% residue incorporation	3.34
Reduced tillage + $N_{100} P_{18} K_{33.3}$ + cellulose decomposing organism + 30% residue incorporation	3.03
Zero tillage + $N_{100} P_{18} K_{33.3}$ + cellulose decomposing organism + 30% residue incorporation	3.50
SEm±	0.07
LSD ($p=0.05$)	0.20



Rice field