



On-Farm Evaluation of Various Rice (*Oryza sativa*) Based Cropping Systems to Improve Profitability and Resource Use Efficiency in Coastal Saline Zone of West Bengal

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Abstract: A farmers' participatory field experiment with four different rice-based cropping systems was conducted during 2011-12 and 2012-13 in coastal saline zone of West Bengal. Due to low land agro-ecosystem, conventionally farmers grow long duration high yielding varieties of rice during wet season and keep their land either fallow or marginally growing some low water requiring crops in dry season (*rabi* and summer) using residual moisture or life saving irrigation. This study was aimed to evaluate profitability and resource use efficiency of rice-green gram, rice – sunflower, rice – sunflower + green gram and rice – lady's finger cropping systems. Rice – lady's finger cropping system recorded significantly higher yield of rice grain (4,617.04 kg ha⁻¹) and straw (6,605.11 kg ha⁻¹), system equivalent yield (28,080.17 kg ha⁻¹) and productivity (78.01 kg ha⁻¹ day⁻¹). The highest net return (₹1,44,600 ha⁻¹) and B:C ratio (2:24) were also obtained in rice – lady's finger cropping system, followed by rice – sunflower. Rice – sunflower cropping system recorded significantly higher phosphate and potash uptake, however, regarding nitrogen uptake the same was at par with rice – lady's finger system. Higher land use efficiency, irrigation water use efficiency, energy output and employment generation were registered with rice – lady's finger system followed by rice – sunflower.

Key Words: Cropping System, Coastal Saline Zone, Employment Generation, Energy Output