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### Sustainable rice production through system of rice intensification-Long term experiences in rice-Rice system

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Rice productivity will get affected due to climate change induced higher temperatures which will increase crops water requirements and further every 1°C increase in mean temperature results in corresponding 7% decline in rice yield and sustainability. Hence, there is a need to identify and popularize suitable technologies for promoting sustainability especially in rice which consumes more than 50% of the total irrigation water for agriculture in India. Experiments were conducted at Directorate of Rice Research, Hyderabad, India during 2008-10 (4 seasons) to assess the potential of System of Rice Intensification (SRI) in comparison to standard normal transplanting (NTP) under flooded condition. Long term studies clearly indicated that grain yield was significantly higher in SRI-organic + inorganic (12–23% and 4–35% in *Kharif* and *Rabi* seasons, respectively) while in the SRI-organic, the yield was found higher (4–34%) only in the *Rabi* seasons over NTP. Sustainable yield indices ( $SYI = Y - \sigma / Y_{max}$ ) were computed based on the 4 years of grain yield recorded over the years clearly indicated the superiority of SRI (inorganic + organic) over normal transplanted with similar inputs. Further SRI method is more stable in terms of the sustainability (0.56) over NTP with similar inputs (0.52). By taking into account all the factors that determine the adoption of SRI such as proper locations, soil conditions, water control facilities etc., it may be possible to cover about 10% of total rice area (about 4.0 mha) in India which can bring about tremendous benefits for the country in terms of input use efficiency and sustainability. There could be enormous saving in seed (80,000 tonnes of seeds annually equivalent to Rs. 200 crores per season) and the system also helps us to save about 30% water which is equivalent to 2200 million m<sup>3</sup> besides, soil health improvement which would be a biggest bonus in adopting SRI.

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