



## Productivity, water use efficiency and economics of system of rice intensification in farmers field of Southern Tamil Nadu

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### ABSTRACT

Four hundred and thirty one on-farm demonstrations on System of Rice Intensification (SRI) were carried out in 300 hectares of farmers fields in Sivagangai and Madurai districts of Tamil Nadu from 2007-08 to 2009-10 under Tamil Nadu-Irrigated Agriculture Modernization and Water Bodies Restoration and Management (TN - IAMWARM) Project. Two methods of rice cultivation viz., SRI and Conventional were compared. The results of large scale on - farm demonstrations revealed that adoption of SRI favorably influenced all the yield attributes of rice viz. number of productive tillers  $m^{-2}$  and numbers of grains panicle<sup>-1</sup>. Superiority of SRI in terms of grain yield was also evident due to 26.7 per cent yield increment by SRI than conventional method of rice cultivation. Higher grain yield coupled with substantial water saving to the tune of 23.6 per cent resulted in higher water use efficiency of rice under SRI method. Higher gross income, net profit and benefit cost ratio were also associated with SRI than conventional method of rice cultivation. The cost of cultivation was comparatively lesser in SRI which resulted in gaining an additional net profit of Rs. 13,981  $ha^{-1}$  as compared to conventional method of rice cultivation.

**KEY WORDS** : SRI, Yield attributes, Grain yield, Water use, Economics

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### INTRODUCTION

Rice is the most water consuming food crop of India and Tamil Nadu. In Tamil Nadu rice crop alone consumes about 80 per cent of the total water available in the state. The present water status demands for the scientific management of available water efficiently to achieve the twin objectives of higher productivity and better water use efficiency. At present, non- availability of labour, escalating input cost coupled with water shortage leads to non economic of rice cultivation. System of Rice cultivation (SRI) is the modern and alternative method of rice cultivation for reduced usage of water and other inputs. The concept of SRI includes transplanting young seedlings

early, carefully, singly and widely spaced with soil kept well aerated. The Manimuthar sub basin is one of the sub basins in Tamil Nadu with a drainage area of 16751 ha. This basin comprises of four minor-basins viz. Manimuthar, Virisuliyar, Thirumanimuthar and Palar and spreads over in six taluks in three districts of Tamil Nadu namely Madurai, Sivagangai and Ramanathapuram. The major focus of this study in Manimuthar basin is to promote water saving technologies, to enhance crop and water productivity and to increase the cropped area by diversification. Therefore an attempt was made to study the performance of SRI in comparison with the conventional method of rice cultivation in the Manimuthar sub basin area.

### MATERIALS AND METHODS

Four hundred and thirty one on - farm demonstrations on system of rice cultivation (SRI) were carried out in 300 hectares of farmers fields in Sivagangai and Madurai districts of Tamil Nadu from 2007-08 to 2009-10 under Tamil Nadu-Irrigated Agriculture Modernization and Water Bodies Restoration and Management (TN -IAMWARM) Project during September to January. The details of field demonstrations in the study area is furnished in Table I. The available soil fertility status of the study area was

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