

Influence of System of Rice Intensification (SRI) technique on the grain yield of rice during dry season

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The **System of Rice Intensification (SRI)** developed in Madagascar by Fr. Henri de Lau Lanie in association with Non-Governmental Organization – Association Tefy Saina (ATS) and many small farmers in the 1980's is spreading to many countries. SRI cultivation is a 'system' rather than a 'technology'. It is based on the insights that rice has the potential to produce more tillers and grain than now observed and that early transplanting and optimal growth conditions (spacing, humidity, biologically active and healthy soil and aerobic soil conditions during vegetative phase) can fulfill this potential (Uphoff, 2002). However, Sheehy *et al.*, 2003 reported that SRI has no inherent advantage over conventional system and extraordinary high yields are likely to be the consequence of error. With this background, a preliminary trial to evaluate SRI method vs normal transplanting was carried out at DRR by taking seven cultivars (two hybrids - PHB-71, DRRH-1, four high yielding varieties – Jaya, Rasi, Krishnahamsa, Tulasi and a scented variety – Pusa Basmati) in clay soils during *rabi* 2003 – 04 season.

Mean over the varieties, SRI method gave 16.6% higher grain yield over normal transplanting. There was wide variability among cultivars for different methods of SRI and normal transplanting. SRI method gave nearly 46 – 48% higher yield in hybrids (PHB-71, DRRH-1), 5.2 to 17 % in high yielding varieties (Tulasi, Rasi, Krishna hamsa and Jaya) while negative results of decrease in yield under Pusa basmati (-35 %) due to its shy tillering character under wider spacing. The increased yields are due to higher tiller numbers effective tillers m² and total biomass under SRI method. SRI method planted on 25 DAS of nursery, as well as transplanting at same spacing (25X25 cm) did not record better yields than that of normal transplanting (20 X 10 cm). The results indicated that SRI method found promising over normal transplanting method and response of cultivars to SRI method varied among the cultivars indicating all cultivars are not suitable for SRI. Hybrids recorded better response to SRI method as compared to high yielding and scented varieties during *rabi* season under Vertisols (clay soils) of Deccan plateau.

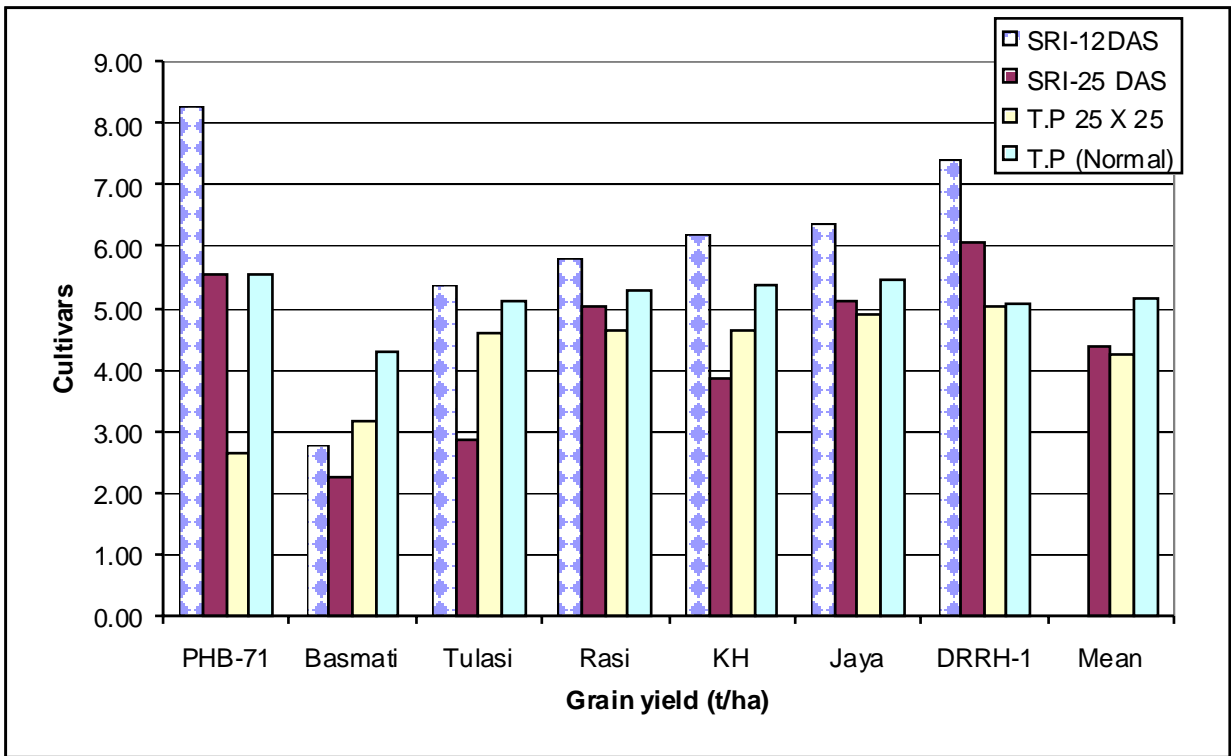


Fig -1. Grain yield of cultivars as influenced by SRI method of cultivation

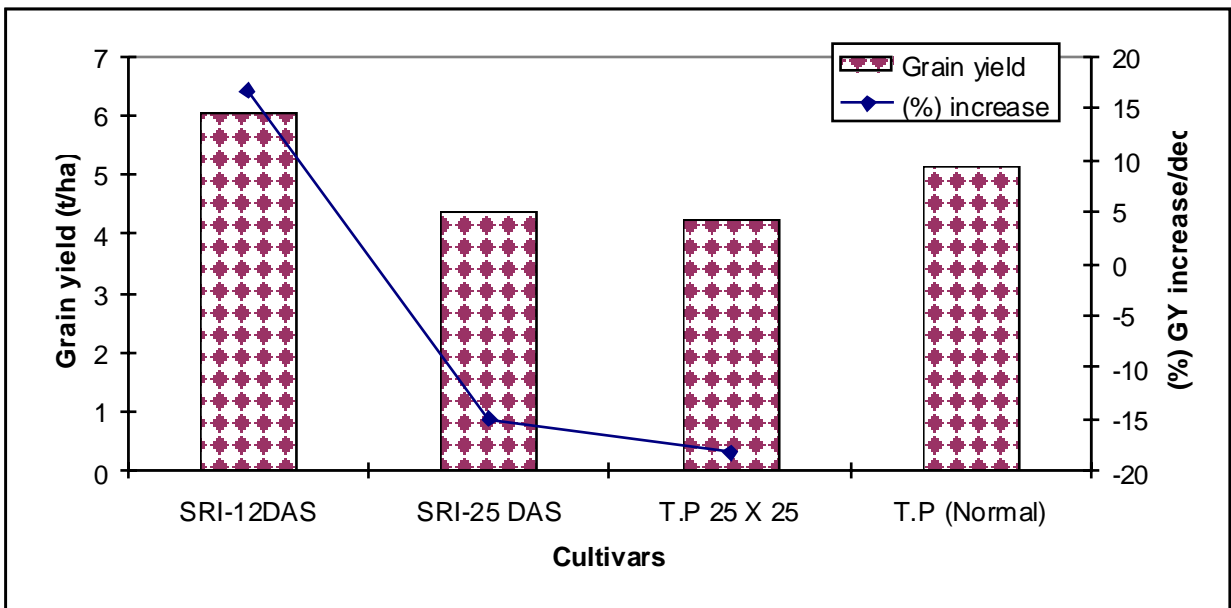


Fig.2 . Grain yield increase as influenced by different methods of cultivation.



Pic. 1&2. Method of raising nursery for SRI method (raised bed)



**Pic. 3&4
Better tillers in Jaya and
DRRH-1 under SRI method
during *rabi* 2003-04**

Table: 1. Differences between SRI and normal transplanting practiced at DRR

	DRR – SRI	NORMAL
1.	Nursery on raised beds with old gunny bag at the bottom and manured heavily without NPK.	Wet beds with less FYM in nursery beds and NPK applied as recommended (1:0.5:0.5 kg NPK /100 sq mt)
2.	Thin nurseries were raised (50 g/sq m) @ 5 kg / ha in 100 sq mt area.	Thick nurseries were raised (150 g/sq m) @ 30 kg /ha in 500 sq m area.
3.	Roots are not washed in water, transplanted along with soil at 2.5 leaf stage immediately.	Roots are washed in water, transplanted at 4-5 leaf stage.
4.	Planted immediately after pulling the nursery from nursery trays.	Planted after 12- 24 hours after uprooting.
5.	Only shallow planting with a spacing 25 x 25 cm.	Shallow to deep planting with a spacing 20 x 10 cm.
6.	Seedlings planted at 12 days and only one seedling /hill.	Planted after 25 days with 2-3 seedlings/hill.
7.	Gap filling was not compulsory and transplanting shock was not observed	Gap filling was done at 10 th day after transplanting . Transplanting shock was observed.
8.	Use of cono weeder in both the directions (3 times) to control weeds and weeds were incorporated.	Cono weeding was not practiced, only hand weeding twice (30 and 45 DAT) and weeds were removed.
9.	Saturation is maintained up to PI stage and later thin film of water (2 cm)	Submergence of 2-3 cm is maintained through out crop growth.
10.	Recommended dose of fertiliser applied (120 : 60:40 kg NPK /ha)	Recommended dose of fertiliser applied (120 : 60:40 kg NPK /ha)

SRI method practiced at DRR could save irrigation water up to 30 %, cost of weed control to an extent of 40 % and seed cost to 60 %, hence highly suitable to hybrids whose seed cost is 6 times higher than HYVs

(cost of hybrid seed Rs 60 /kg, HYV seed Rs 10 /kg and Cost of man day of 8 hours Rs 50 /man and Woman day of 8 hours Rs 30/day)

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- Sheehy, J.E., S. Peng, A. Dobemann, P.L. Mitchell, A. ferrer, Jianchang Yang, Yingbin Zou, Xuhua Zhong, Jianliang Huang. 2003. Fantastic yields in the system of rice intensification: Fact or fallacy? Field Crops Research. 88: 1- 8
