Report on SRI at Khachadrapchu in 2007 Cropping Season

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Summary
The System of Rice Intensification (SRI) was developed in Madagascar by Fr. Henri de Laulanié, S.J., who worked with Malagasy farmers to improve their possibilities of rice production. Remarkable increases in yields associated with SRI adoption have led many to believe that this method could dramatically improve the lives of the poor small farmers also in other low-income rice-producing nations who lack the liquidity to purchase modern inputs and for whom rice is both a staple food and an important source of income (Uphoff et al. 2002). Consequently, System of Rice Intensification trials were established at Khachadrapchu to study the feasibility of SRI in Bhutanese context.

Objectives
o   To assess the yield of released varieties and popular local varieties with SRI practices compared with farmers' management.
o   To assess the yields of rice as affected by spacing.

Methodology
SRI methods were compared with conventional method of rice production.

Practice	*System of Rice Intensification (SRI) methods*	*Traditional methods*
Seedling age (days)	14- 18 2 leaf stage	3 months
Seedlings/hill (no.)	1	3- 4
Plant spacing (cm)	20x20 and 30x30	Random
Weedings (no.)	4	2
Types of fertilizer	Organic	Organic
Water management	Water control as recommended for SRI	Continuous irrigation

FM seedling = seedlings 3 months old
FM seedlings per hill = 2-3 seedlings/hill
FM spacing = randomly transplanted
FM water management s= continuous irrigation as per farmers practice

SRI seedling = seedling 15 to 18 days
SRI seedling per hill = 1 seedling/ hill
SRI spacing = spacing 20X20cm and 35X35cm
SRI water management = enough water was applied to keep the soil moist but never flooded during the plants' vegetative growth phase. A thin layer of water (1- 2 cm) was maintained after panicle initiation and during the plants' reproductive phase
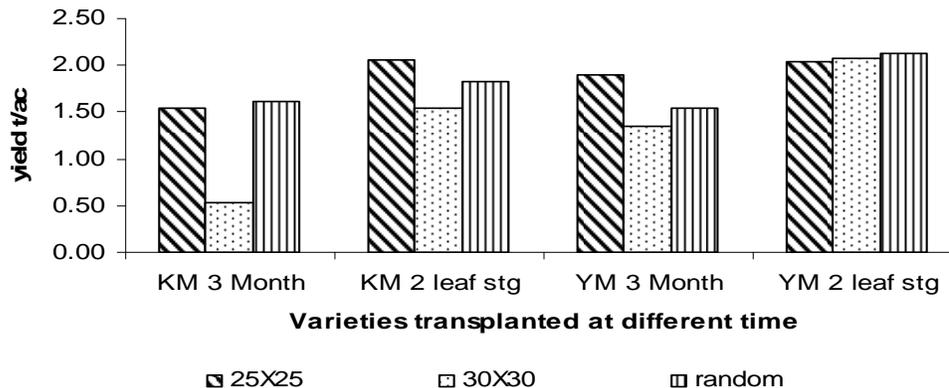
Results

Mean yield differences due to different methods with two varieties of rice

	Yield of 2 leaf stage (t/ac)		Yield of 3 month old seedling (t/ac)	
Spacing	KM	YM	KM	YM
25x25	2.06	2.04	1.55	1.90
30x30	1.54	2.08	0.53	1.34
Random	1.83	2.13	1.61	1.55
	F pr		sed	
Seedling age	<0.001**		0.279	
Variety	0.013*		0.279	
Spacing	0.007*		0.342	
Spacing x Seedling age	0.175	ns		
Spacing x Variety	0.154	ns		
Seedling age x Variety	0.789	ns		
Seedling age x Spacing x Variety	0.445	Ns		

 #   KM: Khangma Maap, YM Yusirey Maap
*** Significant difference at 5% level, * Significant difference at 10% level, ns: non- significance, CV= 16.4%.*

Mean Yield of two varieties due to different managements

Discussion and conclusion
Results seen in table indicate no significant interaction effect of spacing, variety and seedling age or the other combined effects. However, there was significant difference attributable to seedling age, variety, and spacing independently. From the figure it is clear that the 25x25 cm spacing using two-leaf stage seedlings yielded most. It was hypothesized that 30x30 cm spacing would yield the highest, but it was otherwise. This is attributable to the fact that the two-leaf stage is very sensitive to management, especially of irrigation water. There were a lot of missing hills in all the spacing trials, but in 25x25 spacing given the higher number of hills in the plot, this had less effect on yield. Therefore, it is recommended that spacing of 25x25 cm be practiced in the farmers' fields with 2-leaf stage seedlings as these gave significantly higher yield than the three-month seedlings. There was no gap-filling done in the present trials as the seedlings had already reached 3-4 leaf stage. Therefore it would be advisable to establish two nurseries with a 7-day gap between them for better timing of transplanting and also for gap-filling.