System of Rice Intensification (SRI): A New Method of Rice Establishment

RB Neupane
NWRP, Bhairahawa

Introduction

- SRI is a technique of simple manipulation in cultivation practices
- Transplanting of single and young seedlings, with wider spacing, composting and careful water management are the key factors in SRI
- Exploring yield potential through improving physiological activities
- Rice productivity has got stagnant and not much scope has been observed for further improvement with conventional practices of production

MATERIAL AND METHODS

- Experiment laid out in RCB Design with 3 replications

  Main Plot

  - 40cm x 40cm (11 day-old single seedling)
  - 30cm x 30cm (11 day-old single seedling)
  - 20cm x 20cm (11 day-old single seedling)
  - 20cm x 20cm (20 day-old and 2-3 seedlings)

  Sub- plot (Weed Check)

  - Manual weeding (MW)
  - Weeding by rotary weedier (RW)
  - Herbicide use (CU)
  - Weed Check (WC)

MATERIAL AND METHODS

- Soil: heavy clay
- Seed sowing: 12th July 2002
- Transplanting: 23rd July 2002
- Sprouted seed was broadcasted on the wet nursery bed.
- Fertilizer: recommended (100:30:30 NPK, kg/ha)
- Weeding: 4 weedings with SRI and 2 weedings with CP.
- On-farm experimentation in 4 farmers' fields with 3 spacings and farmers practice
- Variety: Sabitri

Rice Yield from Spacing x Weed Control Methods under SRI Technique at Bhairahawa Site 2002

SPXWD	EFT	G/PL	TGW (g)	BMY	GYLD/kg/ha
20X20+MW	244	168	25.34	16667	6577
20X20+CU	267	179	24.87	16083	5955
20X20+WC	160	135	24.52	8917	3880
30X30+MW	181	177	27.85	13333	6842
30X30+CU	200	184	26.08	12519	5420
30X30+WC	86	204	24.26	6148	2773
30X30+RW	219	149	25.92	10815	4975
40X40+MW	179	194	25.12	11771	5238
40X40+CU	170	199	25.41	11563	5005
40X40+WC	63	218	24.81	4021	1404
40X40+RW	170	188	25.70	10792	4602
CP+MW	277	151	25.85	12500	5135
CP+CU	279	143	25.44	10000	5128
CP+WC	247	135	25.34	7250	4657

Cost and return of different weeding practices under SRI, 2002

Weed control	TVC (Rs.)	GR (Rs.)	NR(Rs.)
CU + MW (1)	3100	48393	45293
MW	13978	53532	39554
RW	5250	43097	37847
Spacing			
20cm x 20cm	9950	56394	46444
30cm x 30cm	8383	51711	43328
CP	4306	46184	41877
40cm x 40cm	8383	44535	36152

Rice Yield from SRI Techniques conducted in Farmers' Fields at Bhairahawa Site (Tikuligarh), 2002

Spacing (cm)	Yield Kg/ha				
	Farm 1	Farm 2	Farm 3	Farm 4	Mean
20x20	8795	9110	9675	7705	8821
30x30	8855	6319	6845	8418	7627
40x40	3191	4744	7903	7148	5747
FP	6756	5260	5260	6400	5919

Summary means of grain yield and yield attributes of SRI methods interaction 2001

SN	Interaction	PHT	PL	MT /M 2	ET/ M2	FG	UFG	TG W	Gros s Yield
1	RM X S1	115	24	297	219	180	26	19	**5905**
2	RM X S2	115	24	295	207	184	23	19	5465
3	RM X S3	115	22	308	206	153	11	19	5624

CONCLUSION

- SRI technique with 30 x 30 cm spacing +MW produced highest grain yield (6842 kg/ha), followed by 20x 20 cm spacing +MW, then 40 x 40 cm spacing + MW, and finally conventional practice in 2002 season at NWRP, Bhairahawa.
- Similarly in farmers' fields, 20x 20 cm + MW spacing gave higher grain yield (8821 kg/ha) than the other practices.
- During 2001, at NWRP, Bhairahawa, 40cm x 40cm spacing gave numerically higher grain yield (5905 kg/ha) than other spacing and farmers' practices.

- Transplanting of young (10-12day old) and single seedling always gives higher grain yield than conventional timing.
- More weed pressure has been observed in wider spacing.
- Puddling of soil and holding water in submerged condition for one month prior to transplanting will help to reduce the weed infestation in the field so that weeding costs could be minimized.
- Drying just after irrigation seems deleterious in heavy clay soils, therefore allowing two/three days of water stagnation will be better option.
- Chemical spray followed by one hand weeding seems to be the best method to control weeds

Future Strategies

- **Coming season NWRP,Bhairahawa is going to test SRI practice collaboration with;**
  - **DADO, Rupandehi- 15 farmers fields**
  - **NECOS, Rupandehi- 3 farmers fields**
  - **NAEF, Rupandehi- 3 farmers fields**
- **NWRP wants to add more to current ATA pamphlet to reflect work in Rupandehi**
- **Funding for scaling up and scaling out work needs to be identified**

Thank You