

On-station and on-farm studies on System of Rice Intensification (SRI)

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Introduction and Background

- SRI is a technique of agronomic manipulation.....
- A set of practices based on sound agronomic principles:
 - Raising healthy seedlings.
 - Transplanting of 10-12 days young single seedling.
 - Transplanting of seedlings quickly and carefully to avoid desiccation.
 - Comparatively wider spacing.
 - Composting.
 - Careful water management (wetting and drying).
 - Effective weed control.

Objectives

- Understand SRI technique and its feasibility to the local situations.
- Explore the natural potential of rice plant.
- Minimize the cost of cultivation.
- Increase production through increasing the productivity of land, labor, capital and water.
- Disseminate the technique among farming communities

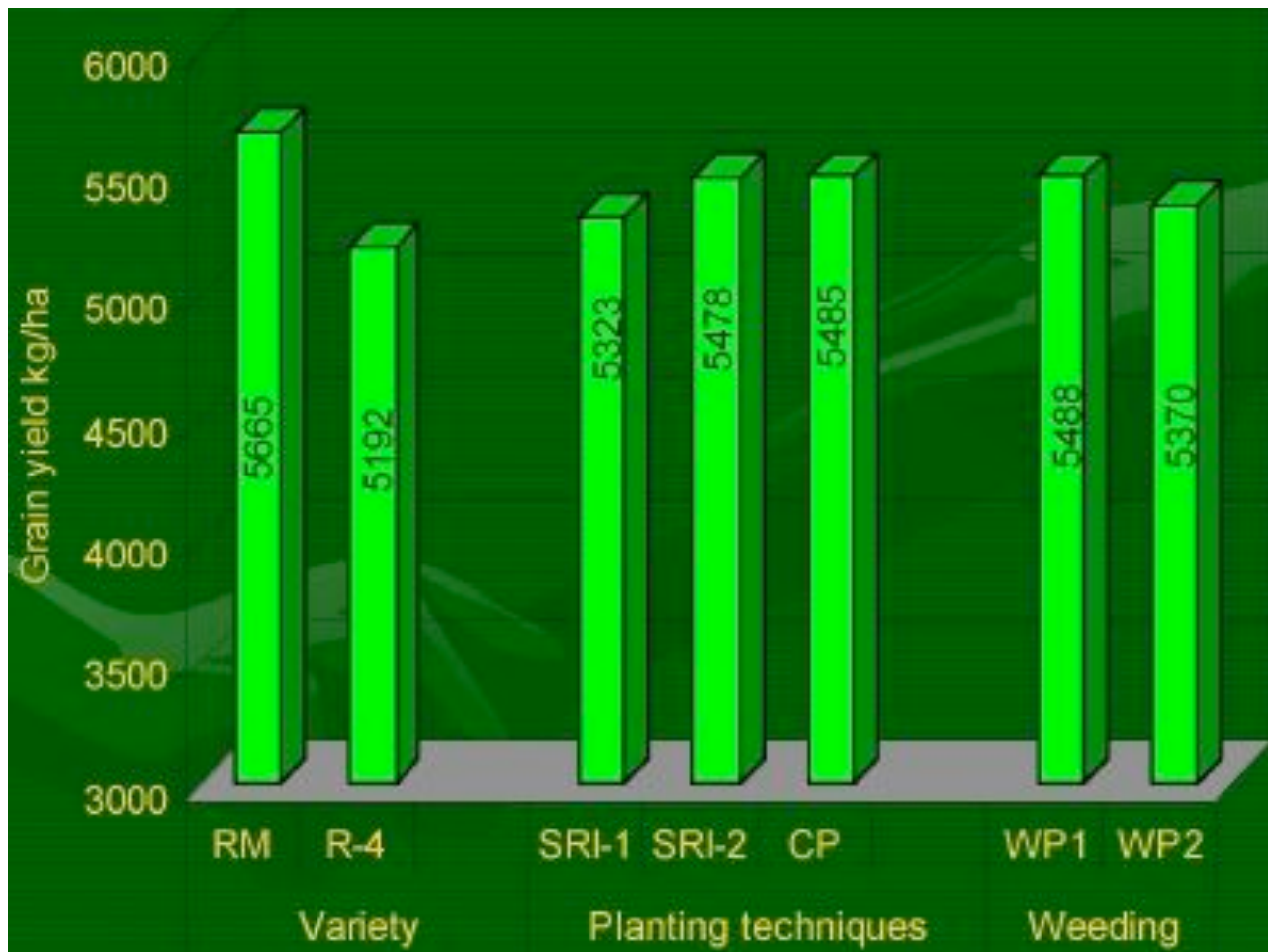
Material and Methods

- Experiment.1 Effects of variety, planting techniques and weeding on grain yield under SRI, 2001/2002
- Three planting methods: 1. SRI1(40x40cm), 2. SRI2 (30x30cm), 3.CP (no fixed spacing)
 - Two varieties: 1. Rampurmasuli, 2. Radha-4
 - Two weeding practices: 1. Rotary weeding, 2. hand weeding
- Experiment.2 The effects of seedling age, timing and rotary weeding on grain yield under SRI technique in 2001/02
- Two age of seedlings: 1.10d, 2. 20d
 - Two time interval: 1. within15m, 2. 4-6h
 - Three rotary weeding:1. 15d, 2. 30d, 3. 45d
- Experiment.3 Effects of different spacing vs. weed control methods under SRI technique in 2002/03
- Four planting methods: 1.SRI1(20X20CM), 2. SRI2 (30x30cm), 3. SRI3 (40x40cm) 4. CP (no fixed sp.)
 - Four weed control methods: 1. HW, 2. HS, 3. RW, 4. WC
- Experiment.4 Evaluation of SRI techniques in farmers field of Rupandehi, 2002/2003
- Three SRI (20x20, 30x30, 40x40 cm) and one FP with no fixed spacing tested in 5 farmers field
- Experiment.5 Evaluation of single and double seedlings /hill under SRI technique in 2002/2003
- Three planting methods : 1. SRI with single seedlings /hill, 2. two seedlings/hill 3. FP

Results

- Effects of variety, planting techniques and weeding on grain yield under SRI, 2001/2002
- The effects of seedling age, timing and rotary weeding on grain yield under SRI technique in 2001/02
- Effects of different spacing vs. weed control methods under SRI technique in 2002/03
- Evaluation of SRI techniques in farmers field of Rupandehi, 2002/2003
- Evaluation of single and double seedlings/hill under SRI technique in 2002/2003

Effects of variety, planting techniques and weeding on grain yield under SRI, 2001/2002



Interaction effects of variety, planting techniques and weeding on grain yield and yield attributes under SRI, 2001/2002

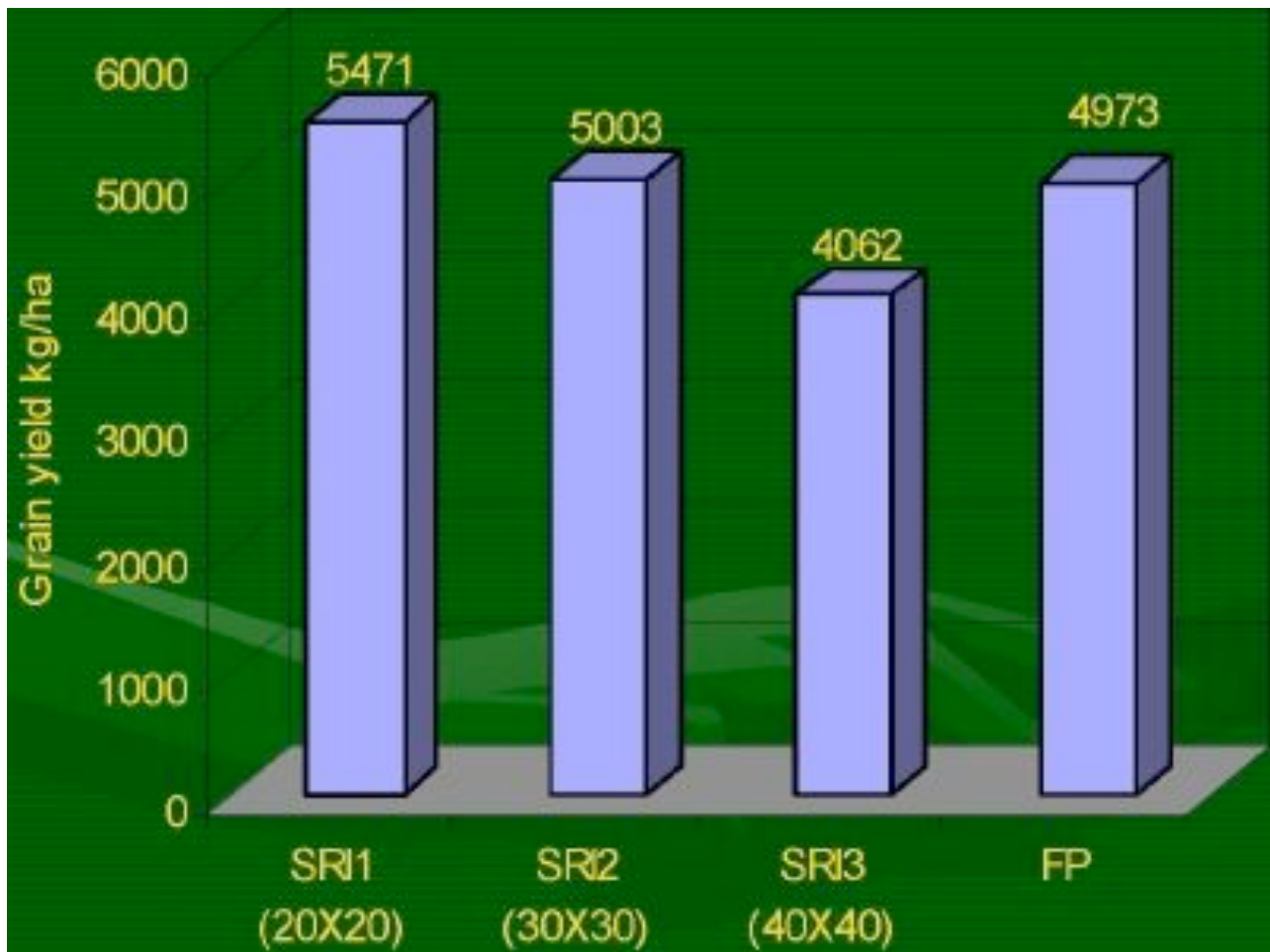
Treatments	EFT/m ²	NG/p	TGW (g)	GYLD kg/ha
V1xSRI1xWP1	227	180	18.5	6193
V1xSRI1xWP2	208	184	19	5402
V1xSRI2xWP1	206	153	19	5624
V1xSRI2xWP2	212	180	18.5	5618
V1xCPxWP1	205	184	19	5529
V1xCPxWP2	206	153	19	5624
V2xSRI1xWP1	173	130	25	4795
V2xSRI1xWP2	178	140	25	4902
V2xSRI2xWP1	203	138	26	5802
V2xSRI2xWP2	174	130	25	4869
V2xCPxWP1	180	140	25	4983
V2xCPxWP2	203	138	26	5802

Effects of seedling age, timing & number of rotary weeding on grain yield under SRI technique



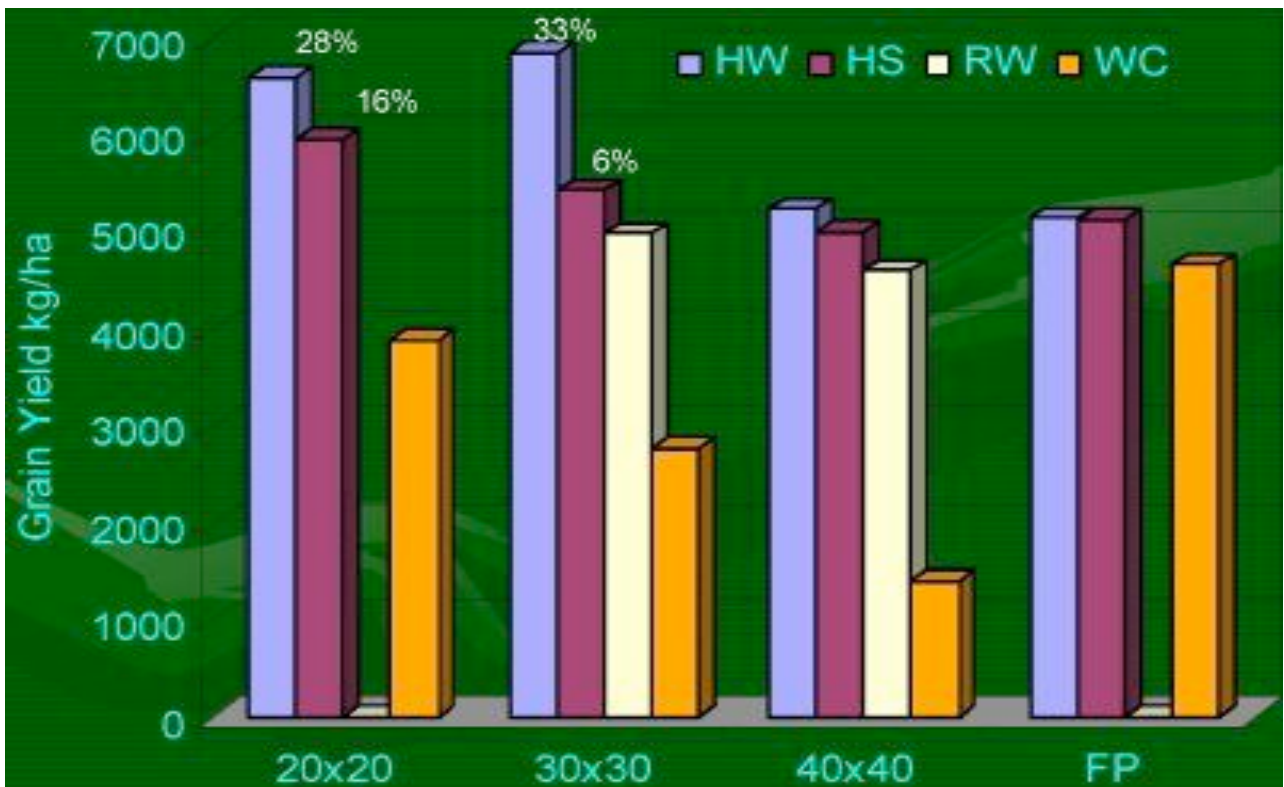
Interaction effects of seedling age x timing x number of rotary weeding on grain yield under SRI technique

Interaction	Grain yield kg/ha	Mean comparison
10dX15mXRW1	3274	F
10dX15mXRW2	5134	ABC
10dX15mXRW3	5548	A
10dX4-6hXRW1	3268	F
10dX4-6hXRW2	4782	BCD
10dX4-6hXRW3	5396	AB
20dX15mXRW1	3479	F
20dX15mXRW2	3581	F
20dX15mXRW3	4549	CD
20dX4-6hXRW1	3627	EF
20dX4-6hXRW2	3655	EF
10dX4-6hXRW3	4321	DE
LSD (0.05)	667.5	

Effect of diff. SRI techniques and weeding practices on grain yields 2002/03



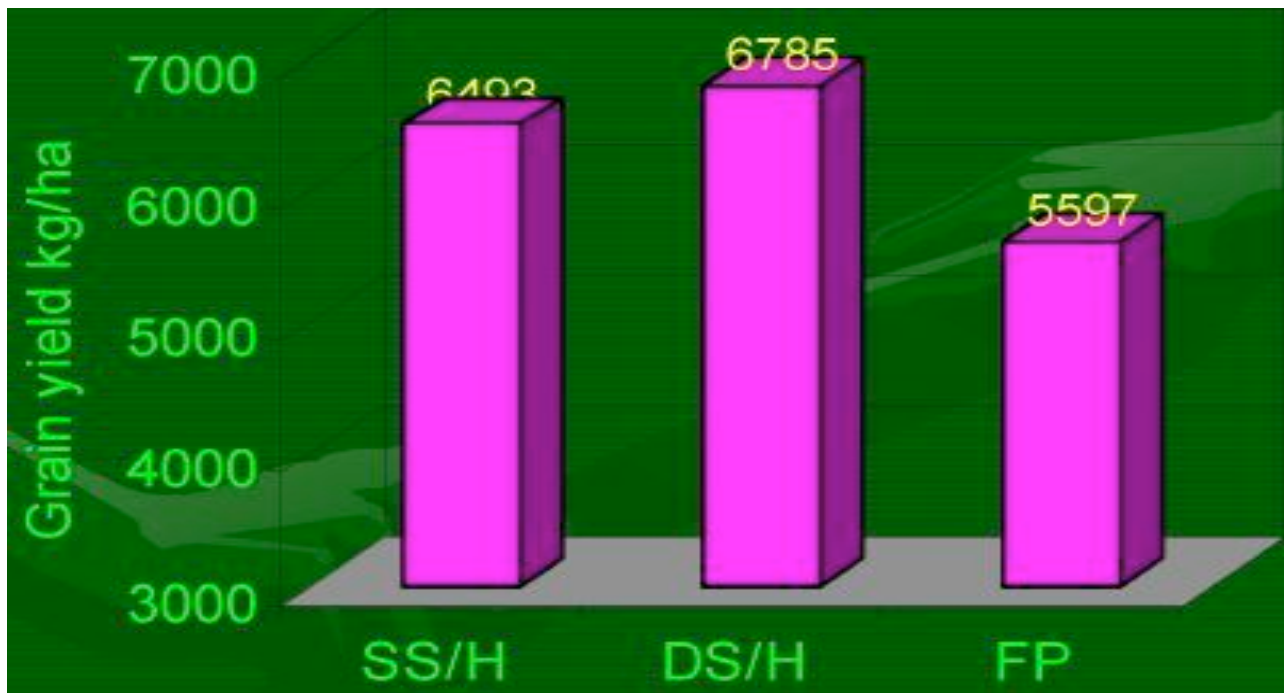
Interaction effects of spacing x weed control under SRI, 2002/03



On-farm SRI yields (kg/ha) Rupandehi district (2002/03)

Treatment combinations	Farm-1	Farm-2	Farm-3	Farm-4	Mean yield
20X20cm spacing	8795	9110	9675	7705	8821
30X30 cm	8855	6319	6845	8418	7627
40X40 cm	3191	4744	7903	7148	5747
Farmer's practice	6756	5260	5260	6400	5919

Grain yield from diff. SRI methods in farmers field, 2002/03**Effect of Single vs. double seedling/ hill transplanting under SRI, 2003/04**



SRI at Tillering stage



Conclusion and Suggestions

- There is tremendous potential and scope for increasing rice yields and production if we could disseminate SRI technology in farming communities with appropriate package of weed and water management.
- 28-49% yield gain was observed over FP.
- SRI with closer spacing of 20x20cm to 30x30cm performed better than wider spacing of 40x40cm.
- Three rotary weeding followed by hand weeding found effective in SRI.
- 10 days old seedlings gives better yield.
- Two seedlings /hill was slightly better than one seedling /hill

Conclusion and Suggestions

- Young uprooted seedlings can be protected by keeping in water for 4 to 6 hours.
- Weeds are major problem in SRI.
- Effective weed management practices at early stage need to be explored.
- Wetting and drying may not be possible during rainy season in plains-over flooding-poor oxygenation-less tillering.
- SRI with direct seeded rice has to be studied.
- Techniques for raising healthy seedling.

SRI-NETWORK-RUPANDEHI

<http://ciifad.cornell.edu/sri/countries/nepal/neprupandehi.html>