

### System of Rice Intensification (SRI)

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#### SUMMARY

The System of Rice Intensification involves cultivating rice with as much organic manure as possible, starting with young seedlings planted singly at wider spacing in a square pattern; and with intermittent irrigation that keeps the soil moist but not inundated, and frequent inter cultivation with weeder that actively aerates the soil. SRI is a methodology for increasing the productivity of irrigated rice by changing the management of plants, soil, water and nutrients particularly by eliciting greater root growth. SRI is not a standardised, fixed technological method. It is rather a set of ideas, a methodology for comprehensively managing and conserving resources by changing the way that land, seeds, water, nutrients, and human labour are used to increase productivity from a small but well-tended number of seeds.

#### INTRODUCTION

Everybody believes that rice is an aquatic plant and grows best in standing water. Rice is not an aquatic plant; it can survive in water but does not thrive under reduced oxygen levels. Rice plants spend lot of its energy to develop air pockets in its roots under continuous inundation. Nearly 70% of rice root tips get degenerated by flowering period. Under SRI paddy fields are not flooded but kept moist during vegetative phase. Later only one inch water is maintained. SRI requires only about half as much water as normally applied in irrigated rice. SRI paddy cultivation requires less water, involves less expenditure and gives more yields. Thus, it is beneficial for small and marginal farmers. SRI was first developed in Madagascar during 1980's.

#### Principles

- Young seedlings between 8-12 days old (2-3 leaf stage) are transplanted to preserve potential for tillering and rooting ability;
- Careful planting of single seedlings rather than in clumps that are often plunged in the soil;
- Wider spacing at 25 cm x 25 cm in square planting rather than in rows;
- Use of cono-weeder/ rotary hoe/power weeder to aerate the soil as well as controlling weeds;
- Alternate wetting and dry method rather than continuous flooding in the field;
- Use of organic manure or vermicompost / FYM.

#### Comparison of SRI and conventional method of rice cultivation

Particulars	Conventional method	SRI
Spacing	15x10 cm	25x25 cm
No of plants per sq.m	66	16
No. of seedlings per hill	3	1
No. of plants per acre	792000	64000
Seed requirement per acre	20 kg	2 kg

#### Advantages

- Saving in seed requirement
- Reduction in nursery area
- Reduction in nursery duration
- Increased tillering
- Profuse root growth- greater force required to uproot SRI plants than conventional plants
- Improved grain filling
- Water savings- results in water savings to an extent of 35 to 40 % compared to conventional method
- Less Lodging- SRI provides good growth environment for rice plants that put forth stronger tillers and extensive root growth and are more resistant to lodging
- Less incidence of pests and diseases

- Reduced chemicals fertilizer- resource poor farmers can apply the locally available organic manures
- Increase grain yield- higher grain yields are associated with SRI than conventional method
- Reduced rodent damage in the field
- Higher net profit



### Constraints in the adoption of SRI

- Require strict water control practices
- Initially SRI method requires more labourers
- Requires greater skill for transplanting
- Weed management is relatively higher than conventional transplanting.
- As SRI is labour intensive it is not suitable for large scale production.
- Traditional mindset of the farmers
- Lack of awareness about the technology
- Non availability of critical implements like marker and weeders
- Lack of co-operation from the transplanting labourers

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