

All You'd Like to Know about SRI in India and More

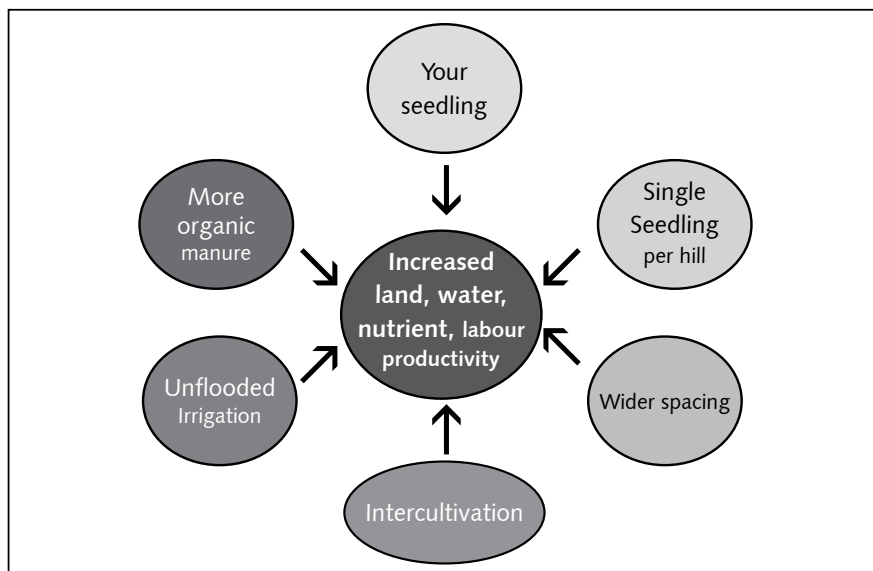
Transforming Rice Production with SRI: Knowledge and Practice, by T.M.Thiyagarajan and Biksham Gujja

BOOK REVIEW: RAVI CHOPRA

How do you think an Indian paddy farmer will respond if you tell her that you can almost double her paddy yield by using much less seeds (and that too her old traditional ones), less water and only organic fertilizer? She will probably suggest that you have your head examined. But if she dared you to do it, you could take up the challenge and introduce her to the System of Rice Intensification, or SRI. That is the paradox of SRI—using fewer inputs you can significantly enhance crop yields.

Speaking about their book, *Transforming Rice Production with SRI: Knowledge and Practice*, the authors say, "This book is an attempt to explain the origin, principles and practices of SRI and the developments so far in communicating the importance of SRI to rice farmers, students, Scientists and policy makers so that the material could be used for extension, research and policy support." Dr Thiyagarajan is a well-known agricultural scientist, earlier with Tamil Nadu Agricultural University, and Dr. Gujja is a former SRI promoter-turned-entrepreneur, who was earlier an advisor to Worldwide Fund for Nature (WWF).

SRI is a new approach to paddy cultivation. It is knowledge-intensive rather than inputs-intensive. The SRI hexagon (see figure) highlights six basic principles that guide the SRI farmer to obtain significantly higher yields. Typically, SRI farmers transplant 8- to 15-day-old single seedlings at distances of 20 cm x 20 cm or 25 cm x 25 cm, using alternate wetting and drying or irrigation, accompanied by weeding and the application of organic manure.



SRI Hexagon

Though the science of SRI is still being understood, particularly how SRI affects the soil, "sufficient scientific explanations are available on the better performance outcome of rice crop under SRI," say the authors. Thus:

- ♦ The very young seedlings preserve the plant's inherent potential for growing roots and tillers.
- ♦ Low plant densities ensure room to grow for the root and canopy, and better access to sunlight and nutrients.
- ♦ Less water application, active aeration and alternate wetting and drying allow the roots greater exposure to air, that is, nitrogen.
- ♦ Organic manure improves soil conditions and provides beneficial micro-organisms.

Chapters 4 to 8 are the heart of the book. They elaborate the practical steps in SRI from seed selection/preparation to harvesting. The practical details are supported by scientific explanations, pictures, data and references. The outcomes of SRI are discussed in terms of the impact on soil, grain yields and farmers' response in Chapters 10 to 12.

Increases in grain yields due to SRI are reported from on-station experiments, on-farm trials and farmer experiences. Thiagarajan and Gujja point out, "Because the yield gains are driven by biological processes rather than mechanistic responses to external inputs, the gains are quite variable and range widely 25%, 50%, 100%." Interestingly, grain yields reported by farmers across India show higher SRI over conventional paddy gains than trials by scientists. The values cited range from a low

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of 12% to over 96%, with most values being between 23% and 83%. "This is the reverse of the usual situation where farmers have a hard time replicating researchers' results. With SRI it is often vice versa," argue the authors.

The higher grain outputs due to SRI are usually accompanied by higher straw yields, which provide more fodder for cattle and, therefore, more farmyard manure, saving of seeds, land for nurseries, water, labour and costs. The labour issue, however, is controversial because labour saving in nursery raising and transplanting may be offset by increased labour due to hand weeding because mechanical weeders are not available. Two other major benefits of SRI are higher nutrient-use efficiency and better yields during droughts and floods, that is, better climate change adaptability.

In India, SRI has been largely promoted by voluntary organizations (VOs) rather than the official agriculture establishment—the Union Ministry of Agriculture, other government departments, agricultural universities and the ICAR institutions. The role of civil society in SRI extension in India is unprecedented say the authors. Fortunately, some state governments have chosen to support the extension of SRI. Wherever the state governments have supported the VOs' efforts, as in Bihar, Tripura and Tamil Nadu, the spread has been more rapid. In Chapter 12, the authors highlight the SRI extension methods adopted by the VOs, the support received from the government—primarily in Andhra Pradesh, Tamil Nadu, Tripura, Bihar and Jharkhand—and the role of donor agencies. The constraints experienced in extension have also been discussed in this chapter.

It is well-known that the response of India's agricultural establishment at the national level to SRI has been unenthusiastic. Despite the mountain of evidence from farmers' fields, government scientists often dismiss SRI saying that there is nothing new in it or that it has not caught on like wildfire among the farmers. Thiyagarajan and Gujja point out that SRI is not a series of mechanical steps that a farmer can follow by simply reading about it or hearing about it. In fact, the steps involved in SRI are not different from those in conventional agriculture. The difference lies in how basic steps such as transplanting, irrigation, weeding or fertilizing are done. SRI being essentially knowledge-based rather than input-driven, the important constraint in sustaining SRI practice is the farmer's or the supporting agency's lack of adequate scientific knowledge. This often leads to lower yields when the conditions are less than ideal or the farmers are unable to practice all the six principles because of practical constraints.

"Once farmers understand the innovation, and the reasons behind it, there can be various ways to take advantage of its opportunities to raise productivity," the authors assert.

Thiyagarajan and Gujja have responded to some of the arguments of the government scientists against SRI in the concluding Chapter 14. But they have shied away from addressing the political question of why India's agricultural establishment at the national level refuses to promote SRI. That is not surprising because the main objective of the authors appears to be to comprehensively present information about the current status of SRI knowledge and practice in India rather than produce a polemic against its official detractors.

Potential practitioners and promoters of SRI in India would do well to read this book and absorb the information about its practice. Despite some typographical errors, the text is easily read. The book has useful data and is well-illustrated.

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