

REVIEW OF RESULTS AND PROGRESS WITH THE SYSTEM OF RICE INTENSIFICATION DURING 2003

Until 1999, there was little knowledge and no use of the System of Rice Intensification (SRI) outside of Madagascar, where it was developed in 1980s. Four years ago, the first SRI trials were done elsewhere, first in China at Nanjing Agricultural University, then in Indonesia by its Agency for Agricultural Research and Development. These showed that SRI changes in the management of rice plants, soil, water and nutrients can indeed increase yields substantially. Further evaluations have documented that SRI methods raise, all at the same time, the productivity of the land, labor, water and capital invested in growing irrigated rice.¹

Over the past four years, SRI has been introduced in at least 20 countries, from Philippines to Peru, with positive results already reported from at least 17. The following reports from a range of countries around the world where SRI is beginning to be used will inform readers of its status and spread at the beginning of 2004, the International Year of Rice.

INDIA

SRI has been introduced most recently and rapidly in Andhra Pradesh State after a visit to Sri Lanka in January 2003 by that state's director of extension and a senior rice researcher. 250 demonstrations were planned on farmers' fields for the 2003 summer rainy season, supported by the state's agricultural university (ANGRAU) and the Department of Agriculture, in all 22 districts of the state. Much publicity was given to create awareness through print media, TV and radio. In addition, a powerpoint presentation on SRI methods was circulated. As a result, additionally several hundred farmers tried SRI by themselves.

The areas sown under SRI ranged from 0.1 to 1.6 ha, with a majority around 0.4 ha. The trials were laid out on all types of soils and with all kinds of irrigation sources, using over 12 different rice varieties. Wider spacing, at least 25x25 cm, with single young seedling was adopted by almost all the participating farmers. However, most did not do the weeding as recommended, and water management was not optimum in many places, with either too long dry periods or flooding. Farmers came to realize the importance of these practices during the season and learned the skills, but too late for their standing crop. The consensus of farmers at post-harvest meetings was that there are no serious barriers to SRI adoption.

The performance of SRI during 2003 varied widely given the range of practices used and different climate and soil conditions. Details are given in Table 2. The most significant finding is that irrespective of the level of yields recorded with SRI, these methods gave on average about 2 t/ha yield advantage over usual cultivation methods, with lower costs of production and less water use. In Rayalseema, the yield advantage for SRI was 4.7 t/ha.

¹ For more information on SRI itself, see W. Stoop et al., "A review of agricultural research issues raised by the System of Rice Intensification (SRI) from Madagascar: Opportunities for improving farming systems for resource-poor farmers," *Agricultural Systems* (2002), 71, 249-274; and N. Uphoff, "Higher yields with fewer external inputs? The System of Rice Intensification and potential contributions to agricultural sustainability," *International Journal of Agricultural Sustainability* (2003), 1, 38-50; or consult the SRI homepage: www.ciifad.cornell.edu/sri/

Table 1. Results of SRI trials in Andhra Pradesh state, 2003

	No. of trials	Range of trial yields (t/ha)	Farmer trials with yields > 10 t/ha	Yield advantage (t/ha)
Rayalseema region	10	7.7-15.5	6	4.73
Telangana region	40	4.2-16.2	10	2.50
Coastal region	84	3.2-14.3	17	1.15
Total Andhra Pradesh State	134	3.2-16.2	33	1.87

Of the first 134 results reported, most with shorter-maturing varieties, one-quarter (33 farmers) recorded yields over 10 t/ha, while another 28 farmers had yields between 8 and 10 t/ha. This contrasts with average paddy yields in the state of 3.87 t/ha. An additional 69 demonstration trials managed by the State Department of Agriculture yielded 8.34 t/ha on average, compared to 4.89 t/ha under normal planting. Out of the 16 districts, in five the average was over 10 t/ha. SRI rice plants developed extensive root systems and a larger number of robust tillers. An increased number and larger size of panicles were responsible for the higher yields. The plants appeared to benefit from a more favorable soil environment created for the proliferation of soil microorganisms, encouraged by the addition of organic matter, alternate wetting and drying, and churning of soil for aeration during weeding.

SRI fields were uniformly greener than other fields. Some farmers applied urea at the time of panicle emergence in their anxiety to ensure higher yields from the excellent canopy. However, this application affected the crop adversely, maybe due to some suppression of microbial activity. Farmers who were willing to use the recommended practices found that they could get better results by applying less water and fewer chemicals to their fields. Given the reduction in water use and other inputs together with increased yield, considerable farmer enthusiasm for the new methods as been engendered. It is anticipated that farmers will devote 10,000 acres, or maybe more, to SRI production in the 2004 winter season. (Reported by Dr. A. Satyanarayana, Director of Extension, A. N. G. Ranga Agricultural University, Hyderabad.)