

Report of a Meeting on the System of Rice Intensification (SRI)
ANGR Agricultural University, Hyderabad, Andhra Pradesh, 29 June 2006

Drafted by Kevin Fingerma – UC Berkeley Energy and Resources Group

This meeting was convened through the joint efforts of the ANGR Agricultural University and the Hyderabad office of the World Wide Fund for Nature (WWF). The approximately 70 participants ranged across stakeholder groups included researchers, government representatives, NGOs, and farmers. Some participants attended for as long as 10 hours, given the amount of interest that the discussions generated. The event began with addresses from selected attendees. Some key points are reported below.

Dr. K. Chandarashekara Rao – Director of Extension, ANGRAU:

- Last year, India's farmers planted 44.5 million hectares of paddy. 84 million tons of rice were harvested. This represents an average yield to 1.9 tons/hectare.
- One projection holds that by 2030, rice production will need to have increased by 60% if demand is to be met. Through conventional means, this would require a three-fold increase in the application of nitrogen fertilizers.
- In the coming years, water scarcity in Andhra Pradesh promises to be an increasingly pressing issue.
- Wherever water management was good, SRI increased yields. Where water management was poor, especially in canal-irrigated areas, yields came down.
- Farmers using good SRI practice consistently produced plants with 50 to 60, even 100 or more tillers. Furthermore, grain weight was seen to increase under SRI cultivation.
- Pest attack was far reduced, as was the incidence of lodging.
- Less methane gas is produced and more paddy straw with SRI methods.
- ANGRAU research stations saw an increase of 2.9 tons per ha in their SRI experimental plots.
- 16.7% reduction in water requirement was seen in the ANGRAU experiments
- But a 19% *increase* in water requirement occurred in experiments at NANDYAL Farm.
- This season, the Andhra Pradesh Department of Agriculture is proposing to have SRI demonstration plots in 20,000 villages across the state.

Dr. P. Raghava Reddy – Director of Research, ANGRAU:

- People who are opposed to SRI give projections of high yield so that when SRI falls short of the projection, there will be disappointment. Instead, we should be looking at the current actual yields and trying to improve upon them.
- In some canal-irrigated areas, farmers are using 18,000 liters of water per kilogram of rice produced.

Dr. D Jagannadha Reddy – ANGRAU:

- There have been six successful SRI crops produced thus far in Andhra Pradesh, with the amount of land under SRI cultivation increasing with every season.
- Today, 100,000 acres of Andhra Pradesh land are being farmed using the SRI method.

- We are very much encouraged. Even when the gains are small, they are there, and this means there is room for improvement. It's a great achievement.

Dr. Viraktmath – Project Director, Directorate of Rice Research:

- I firmly believe that researchers must involve farmers at every step along the way. SRI is the best ever example of the value of this ideal.
- There is a need to increase production by 1.5 million tons every year to keep up with demand. Meanwhile, soil fertility is diminishing, and water is becoming scarcer.
- Rice consumes 50% of the agricultural water used in Andhra Pradesh.
- In a few years, people all over India will be asking: “Who were the pioneers?” The answer will be Andhra Pradesh farmers and ANGRAU.
- For the past two seasons, the Directorate of Rice Research has been conducting research. In most cases, a 15-20% increase in yield has been seen with SRI.
- SRI is an environmentally-friendly and less input-intensive cultivation technique.
- Farmers are far more impressed by what they see in a friend's field than in the plots of the Directorate of Rice Research.

Dr. M. Suryamayana Reddy - Water and Land Management Training and Research Institute (WALAMTARI):

- Some farmers have disadopted SRI because of labor increases in seed bed preparation, in transplanting, in weeding, and because water management needs to be far more carefully controlled.

Dr. Vinod Goud – WWF:

- In 1980, rice accounted for 50% of Indian grain production. By 2000, that figure had climbed to 70%.
- There has been a change of food habit as the staple diet of Indians has shifted towards rice.
- This has also resulted in a major drain on the region's water resources.
- SRI is not being scaled up as it should, even with a great deal of support and evidence of the potential benefit.
- Only one or two types of weeders are in common use, despite a great diversity in agroclimatic zones. More research is needed to develop and spread weeders specifically suited to individual climates.

After the invited addresses, the floor was opened to the assembled farmers to share their experiences and opinions with the other attendees. Below are some of the views that were expressed.

Experiences and Ideas Reported from Farmers:

- First crop under SRI produced 62 bags per acre (1 bag is approx. 75 kg, so yield was 4.55 tons per hectare). Later, harvest results were erratic and came down to average about 50 bags per acre. Overall, very satisfied with production.

- During the first year of SRI cultivation in village, there was only one farmer. Now 80% of the village is using SRI. Suggest higher seed rate in seedling bed – 4 kilos per acre rather than two.
- 12 acres under SRI this rabi season. Planted seedlings at 17 days age and harvested 50 bags per acre. Planting slightly older seedlings caused a decrease in yield.
- Finding some immature grains on plants with many tillers. Wondering why this occurs.
- After paddy, land is more difficult to till because of larger root mass. These root balls do not decompose quickly enough. Causing difficulty in sowing the subsequent crop of groundnut.
- Not much yield increase, but full, quality grains. Other farmers bought the rice at a premium price to use as seed.
- Weeds are a major problem for adoption of the technique.
- Cono weeder broke very quickly.
- Started with ½ acre under SRI – produced 58 bags per acre. Last season, yield dropped to 34 bags. Once weeds are removed, SRI cultivation is not difficult. The biggest difficulty is in labor shortage. One option to reduce labor requirement is not to make the channels between beds. Once weeder has been used once, channels are formed.
- For the first year, the labor requirement was about 20 person/days per acre. The second year, it was about 15. By the third, it had fallen to 8. About 15 person/days are required per acre of conventional paddy. Other related activities such as carrying seedlings, preparing seeds beds, etc. vary in the labor impact of SRI.

Recommendations:

- Give incentives to rice farmers for practicing SRI method.
- Special allocation of budget for SRI work in research institutions. Expand and strengthen SRI research activities.
- Place programs about SRI on various T.V. channels and give further coverage in magazines/newspapers.
- Modify and develop conoweeder suitable to different soil and moisture conditions.
- Fine-tuning SRI to location-specific conditions is very essential for its popularization.
- Regardless of whether or not yields have risen with SRI, they have certainly not suffered. As a result, there should be a tax of 1000 Rs per acre on traditional rice farmers to encourage their use of SRI as a water and power-saving method.
- In delta lands, rich heavy soil is almost knee deep when it has been plowed. In summer crop, simply till the land and don't puddle it. That way it won't be as muddy during the Kharif (monsoon) growing season.

Following the open session for farmer discussion, there was a session on weeders. A representative from AGROS, the government supplier of SRI implements, answered questions and dialogued with farmers about their concerns. A great deal of debate took place over the variety of weeder designs. Some claimed that the weeders in question will not work in heavy soils, others that they would wear out quickly. It was pointed out that the implement's shortcomings were influencing adoption by would-be SRI farmers. In the end, the representative announced a new government subsidy for privately-designed and manufactured weeders if they are of good quality.

Note: K. Fingerman would like to acknowledge and thank Dr. Parcha Kishan Rao (WASSAN) and Dr. P. M. Kumar (DRR) for their assistance in following the discussions, much of which were conducted in Telugu.