SRI Newsletter

System of Rice Intensification

Sir Dorabji Tata Trust
SDTT
ICRISAT
WWF

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inside pages

Dear All,

The journey from Hyderabad to Coimbatore via Agartala clearly indicates the phenomenal growth of SRI in India. This collective journey each year is adding to our insight, experiences and excitement. This proclaims a new beginning of transforming the agriculture in general and paddy cultivation in particular.

SRI is not a technology but a holistic approach to agriculture that addresses positively some of the pressing issues connecting to food, water, land, and people. It is empowering farmers to innovate, to produce more with less. This is good for the environment, good for the people, and good for governments.

We have now more challenges to address after Coimbatore. The most important is to scale SRI to a level where the benefits will be felt at national level, i.e., in meeting the food grain requirements of the country. Some of us are gathering in early February to come up with a framework for how to coordinate and accelerate scaling-up efforts while further improving and fine-tuning the SRI methodology to suit various ago-climatic zones. All of us need to be part of that joint journey.

This newsletter issue is a brief recap of the 3-day symposium at Coimbatore. Reflections of several participants have been included. Some participants have provided excellent suggestions on the follow-up to the discussions, which we need to consider and give an institutional shape to carry forward. The field visit has actually raised a fundamental issue: What is SRI? and What is not SRI? This is a complex issue, and Norman Uphoff has attempted to address it in a nuanced way. We also have in this issue a report on the Iraq SRI initiative, which reaffirms the merits of this approach and makes us stronger in all our initiatives on the SRI front.

Finally we once again thank our host, the Tamil Nadu Agricultural University in Coimbatore for the hard work invested in making the Symposium a grand success.

Dr. Biksham Gujja

Cover Story

A Recap of the 3rd National Symposium on SRI

Philip J Riddell

The massive attendance of more than 350 participants at the 3rd National Symposium reflected the growth and involvement with SRI in India and other countries.

From the 1st to the 3rd December 2008, the Tamil Nadu Agricultural University of Coimbatore hosted this 3rd in a series of symposia dealing with SRI in India, and by extension in the rice-growing world. The Symposium was attended by 350 participants from almost all the states of India and by 15 international participants. Initiated by Dr. Biksham Gujja and Dr.Vinod Goud, the symposia have been supported by the Worldwide Fund for Nature (WWF) through its Dialogue Project on Food, Water and Environment with ICRISAT, the International Crop Research Institute for the Semi-Arid Tropics. Sir Dorabji Tata Trust (SDTT), Mumbai, the National Bank for Agriculture and Rural Development (NABARD), Mumbai, and the National Food Security Mission (NFSM), Delhi, deserve a special mention for the support they extended to the 3rd National Symposium.

Dr. Biksham Gujja (right), and Dr. B.C. Viraktamath (left) lighting the lamp

The 1st Symposium was convened in November 2006 at the Acharya N.G. Ranga Agricultural University, Hyderabad, with support from the WWF, and for the first time in this context, it gathered together farmers, scientists and civil society.

Building on the success of the 1st, the 2nd National Symposium was held at Agartala, Tripura in October 2007 and was expanded to include policy makers. As such, it was instrumental in generating interest among government, banks and the private investment trusts, not least as regards the provision of direct farmer support in many states. In addition, the event:

- motivated several researchers and research institutions to initiate experimental trials across the country;
- facilitated the networking of like-minded individuals and agencies for the cross-sharing of experience and training support, not least as regards dissemination of the system in new areas; and most importantly
- the event welcomed the inclusion of SRI in the National Food Security Mission as an option for improving the productivity of rice in the country.

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Participants at the symposium were drawn from the farming community, academia, government, private practice, commerce and international organisations; and in addition to participants from India, others travelled from Afghanistan, Bhutan, France, Indonesia, Malaysia, Nepal, Netherlands, Philippines, Switzer-land and USA: and all contributed enthusiastically in the various discussions and field visits that took place throughout the three days.

Monday morning, December 1, the Symposium opened with usual ceremonies, starting with the lighting of multiple oil lamp wicks on a tall brass lamp at the front of the auditorium. One variation from usual protocol was to include among the dignitaries on stage a woman farmer from Tamil Nadu, Smt. (Ms.) Manonmani, who represented farmers' interest and involvement with SRI. Dr. Biksham Gujja, senior policy advisor for WWF and the prime mover behind the Symposium, led off the presentations, giving the welcome and stating the purpose and objectives of the event. Dr. Biksham focused particularly on the urgency of reducing the water requirements for rice production given the growing water crisis in India. He also noted successes gained to date not only with respect to rice, but also the emerging potential for other crops including sugarcane and even non-tillering crops such as green grams. However, according to Dr. Biksham, today's challenge is not technical but rather the identification of measures for taking SRI to scale, leading thus to the main point of his speech which was to ask the participants "where do we go from here?".

Dr. C. Ramasamy, Vice Chancellor of the host institution, then followed with the Presidential Address in which he introduced participants to the local experience of SRI in Tamil Nadu before: i) suggesting current research priorities (soil management, transplanting regimes and water management) and ii) describing socio-economic research currently underway at TNAU, focusing on water management and extension strategies. A women farmer, Smt. Manonmani then provided a formal response which spoke of farmers' initial skepticism and reticence and later

This 3rd Symposium had three themes:

Sharing of Experiences: which was intended to involve farmers, promoters, researchers, state government officials in focusing on:

- the diversity of extension approaches;
- the difficulties and constraints encountered by them;
- new or improved tools;
- innovations in crop establishment and management; and
- organic farming.

Understanding Constraints and Opportunities: which was intended to familiarize participants with respect to current research regarding:

- theoretical and conceptual issues in SRI (such as the roles of soil biology and micro-biology);
- possible modifications to water, soil, nutrient and weed management;
- the quality of grain and straw as affected by SRI practices;
- varietal responses to different soils and field conditions, etc.;
- innovations in farm implements and mechanization; and
- economic impact assessments.

Options for the Scaling-up of SRI: this theme, which was explored in the format of a high-level panel discussion, targeted at the key issues of policy, development strategies, institutional mechanisms, financial resources and incentives, etc.

(From left to right) Dr. Natarajan (TNAU), Dr.Vinod Goud (ICRISAT-WWF), Dr. Norman Uphoff (Cornell University), Mr. Biswanath Sinha (SDTT), Dr. L.G Giri Rao (ANGRAU), Dr. Biksham Gujja (ICRISAT-WWF), Smt. Manonmani (farmer) and Dr. B.C.Viraktamath (DRR) 'releasing' several newly-published books and manuals on SRI

According to Dr. Biksham Gujja, senior policy advisor for WWF and the prime mover behind the Symposium, today's challenge is not so much technical any more but rather the identification of measures for taking SRI to scale.

acceptance of the method followed eventually by grateful enthusiasm.

A brief ceremony celebrating recent SRI publications then took place before Dr. Norman Uphoff was invited to present the Chief Guest's Address. This took the form of highlights from a major paper that he had prepared for the Symposium and which is available in the proceedings. His main thrusts concerned the need to understand that SRI is not a technology but a combination of practice, scientific principles, and a philosophical paradigm. As such, SRI is an opportunity that is continually evolving, deepening and improving. He likened SRI in fact, to a benign virus, a good infection that has been spreading around the globe – in other words a set of ideas that has infected its proponents and which should be allowed to infect many more! He also defined SRI as a movement: a movement of people with common ideals and aspirations which calls not only for cooperation but also constructive criticism. With all this in mind, Dr. Uphoff stressed the importance of total factor productivity - not just yield per unit of area – but per unit of water, per day of labor, and returns to capital expenditure. He drew his presenta-tion to a close by challenging the participants to make the most of the three days available to them and to remember the words of US President Obama "Yes we can!".

The scene having been firmly set, and the challenges presented, the technical sessions of the Symposium then got under way. They were of several types: plenum papers and discussions; group work, also comprising papers and discussions; field visits; group presentations in-plenum; and finally a high-level panel discussion.

Of significant general interest were the presentations from farmers who have been practicing SRI for their livelihoods in various parts of India and from researchers in regional countries (Nepal, Sri Lanka, Afghanistan, Iran, Iraq and Bhutan).

More specific professional interests were aired and discussed in the four break-out groups dealing with:

i) research;
ii) extension, tools and constraints;

Dr. Norman Uphoff stressed the importance of total factor productivity - not just yield per unit of area – but per unit of water, per day of labor, and returns to capital expenditure.

iii) economic impact assessment and markets; and
iv) policy, institutions and strategies.

It was clear from the groups' plenum presentations that the group work was highly relevant to their members' professional interests.

This plenum group was chaired by Dr. G.S. Ayyangar of the Ministry of Home Affairs (Delhi) who drew participants' attention to Tripura state's highly favourable experience of SRI in terms of its success and increasingly widespread uptake. However, he also expressed a degree of caution, suggesting that SRI may not be economically advantageous in all locations.

The afternoon on the second day devoted to four field trips to SRI demonstrations inspired wide-ranging discussions, both critical and supportive. In particular, the visits led to an interesting debate concerning how to measure SRI in terms of actual practices

(not least for accreditation and/or monitoring purposes). This, of course, spoke very much to the points made in the Chief Guest's Address concerning the need to understand SRI as a menu of approaches rather than a strict and immutable methodology.

The panel discussion, which was expertly and entertainingly facilitated by Dr. Gujja, began by asking the panel members to answer three simple questions:

i) Does any Panel member feel that there is no merit in SRI?
ii) What is the single most important benefit of SRI
iii) What are the two most significant constraints on SRI up-scaling

After the panel had done so, the greater body of participants was also invited to contribute, thereby producing a very lively response from the plenum.

The Panel then moved on to deal with the three substantive questions as follows:

i) Is it possible to promote SRI on at least 5 million ha in India in the next 5 years?

ii) If it is possible, then what major policy changes are required and how can they be achieved?

iii) What kinds of financial resources and institutional mechanisms would be required to facilitate scaling up of SRI to the scale of 5 million farmers?

The panel's answers can be summarised in the following way. Although it is possible and both desirable to scale up SRI in the way suggested by the first question, there are various paths by which to do so. Agreement was not reached, for instance, on the scale and nature of policy- level initiatives neither did the Symposium participants (panel and plenum) agree on the need for incentives (other than the demonstrable benefits of SRI itself). All agreed however:

i) that there are significant externalities that should be quantified for the sensitisation of policymakers (such as the economic value of the water saved, and the opportunity cost of development capital saved from not building new irrigation schemes), and

ii) that there is a wide and pressing need to take SRI to scale not only in India, but also the rice-growing world at large, and not only for rice; but also by suitably adapting the methods to other crops.

With this positive note, the Symposium moved to its final session which included three sets of closing remarks, each focusing on "the way ahead", and an inspiring closing message provided by the session's Chief Guest, ICAR's Director General Dr. P.L. Gautam. The first remarks were given by Dr. Natarajan, Director of the Center for Soil and Crop Management Studies (CSCMS), TNAU, who summarised the way ahead in terms of research, extension, management, up-scaling and the ongoing development of appropriate machinery. The second set of remarks were given by Dr. N. Uphoff, who suggested that participants should think of SRI not as a noun with a precise and possibly restrictive meaning, but rather as an adjective that can be applied to various combinations of technical practices. He ended his address by outlining his personal "way ahead" as far as his current visit to India was concerned. The third closing remarks were provided by Dr. Biksham Gujja of the WWF-ICRISAT Project who called for the establishment of a specific fund to be used for the incentivisation of more farmers and the development of new machinery, including motorised weeders and the like. He also suggested the need for policy-level initiatives intended to coordinate, even unite basic administrative bureaus, research institutions, extension agencies and the like, in order to create and disseminate a clear-cut message about SRI that will trickle down throughout India's rice farming community.

Field trips to SRI demonstrations inspired wide-ranging discussions – both critical and supportive – and sparked interesting debate concerning how to assess SRI in terms of actual practices.

(Contd. on page 13)

Reports of Farmer Experience
at the 3rd National Symposium

Excerpts from Dr. Norman's draft report on the 3rd National Symposium where he reviews SRI farmer experiences from different parts of India, presented by a panel of farmers on the first day of the 3-day event.

Punjab

The first report was from Kapil Behal, whose farm is in Gurdaspur district of Punjab and who has received guidance from Dr. Amrik Singh in the Ministry of Agriculture's ATMA program. SRI use in Punjab started in this district at Dr. Singh's initiative in 21005-06 when 10 farmers cultivated SRI on 3 acres. The next year, use of SRI expanded to 25 farmers on 30 acres, and to 150 farmers on 175 acres the next. This year, in Gurdaspur alone 150 farmers are using SRI on 225 acres, while SRI use is spreading within the state.

Behal reported that he got a 20% yield increase, going from his already high level of 7.7 tons/ha with standard methods, to 9.8 tons/ha using SRI practices. He has been able to reduce his water use by about 50%, he said, doing alternate wetting and drying during the season, applying 13 irrigations instead of 25, and maintaining a maximum depth of 2.5 cm, whereas standard practice is to maintain 5 cm of standing water. Summarizing the experience of Gurdaspur farmers, Behal reported that their yield increases of 20-25% were attained with 75% less seed, 45-50% less water, and 25-40% less fertilizer. Also, the rice crop matures 8-10 days sooner than with usual cultivation methods.

Behal reported further that SRI practices are giving farmers better grain quality, more resistance to pests and diseases, and improvements in soil health. The constraints that he identified from farmer experience were: psychology and attitudes; water management problems; shortages of labor for certain operations; inappropriate design of the available cono weeders; limited organic matter for making compost; labor-intensity; and unreliable electricity for pumping water.

Karnataka

Revanna from Bellary district in Karnataka has been assisted by the AME Foundation based at Bangalore. He used just 2 kg of seed/acre (5 kg/ha), did seed selection, and treated his seeds with Azospirillum bacteria (200 g/acre). He transplanted 10 day-old seedlings with just 1-2 seedlings/hill, irrigating his field only once a week up to panicle initiation and then twice a week thereafter. He started weeding his crop at 20 days after transplanting and did 4 weedings in all.

Revanna reported higher root growth with SRI although he also had more weeds to deal with. His yield increase was only 5%, going from 4.875 t/ha to 5.125 t/ha. However, since his costs of production were cut by 30%, this gave him a 60% increase in net income, which was raised from Rs. 9,286 to Rs. 14,872.

Haryana

Anurag Tewari from Tilda Riceland Pvt. Ltd. reported on the SRI experience of two farmers in his state, Nirmal Singh and Sukhjinder Singh. Both are successful producers of Basmati rice which has high market demand. Tilda is the largest exporter of Basmati rice from India, and it has been promoting SRI because of the many advantages it offers. Tewari listed these, as he had done at the 2nd Symposium, as including: higher tillering, more grains per panicle, and better grain weight. Tilda is particularly attracted by SRI's improved grain quality: a higher head rice recovery rate when SRI paddy is milled; reduced chalkiness; less green grains and immature grains; and fewer damaged and discolored grains. These improvements result in the production of higher-quality Basmati rice for export.

When Nirmal Singh and Sukhjinder Singh used SRI methods, they averaged 12.03 tons/ha with SRI vs. 11.32 tons/ha using the best management practices currently recommended by Haryana Agricultural University (HAU). Problems that farmers in Haryana report are:

- SRI is "a bit complicated"
- SRI is not cheap to utilize and is more labor-intensive [although this observation is at variance with what some other farmer reported];
- SRI requires continuous attention; and
- SRI requires a strong extension effort to support farmers in their innovation.

Tiwari closed the Tilda presentation with this conclusion: "SRI has tremendous potential for small farmers."

Uttarakhand

Rikeshwar Prasad from Tehri Garhwal district has been assisted in his use of SRI by People's Science Institute (PSI) in Dehradun. He has only 0.1 ha of paddy land, not an uncommon situation in this hill state. With conventional methods, his previous paddy yield was 3.75 tons/ha, which gave him only 375 kg per year to feed his family of four. So they could not meet their basic staple food needs. With SRI, he has considerably changed his crop management. Instead of maintaining 6 inches of water on his paddy field, he aims now for only 1 inch, and he needed to use only 1.25 kg of seed for his field, instead of 10 kg as needed before.

Rikeshwar reported that in three years of using SRI methods, his yields have been 6.25 tons, 9.35 tons, and 7.81 tons/ha, respectively. This is more than double what he produced before, greatly improving his family's food security. He has also gotten 2 to 2.5 times more fodder for his two buffaloes, which is an important consideration for him. He listed the following advantages:

- Less water is needed,
- Less time is required ("SRI needs less labour work" – this is a different assessment from some of other farmers' reports], and
- Lower cost of production, leading to much greater net income. With SRI, he has been able to reduce his costs per hectare from Rs. 21,700 to Rs. 12,500. Thus, given the higher value of his production, his net income from paddy has increased almost ten-fold, from Rs. 2,750 previously to Rs. 27,600 per hectare now.

The constraints that Rikeshwar listed were: Difficulty in using marker and weeder for the first time, especially by women; difficulty in using weeder and marker in small and irregular terraces; difficulty in transportation of 10-day-old seedlings; and uncertain availability of water under rainfed conditions, especially after the milky stage of ripening. He suggested four lessons: Nursery raising and transplanting need to be done on time; more weeding results in higher yields; design modifications are needed in the Mandava weeder for small terraces; and proper water management is required in terraced fields.

With amusement, Rikeshwar reported that initially there was a lot of reluctance in his village toward using SRI methods. "Neighbors said that I was spoiling my field. Now, however, most are willing to accept SRI." Before, Rikeshwar was able to produce only enough food grain to feed his family for 2-3 months, he said. Now, he produces 6 months' supply of food for his family plus more fodder for his two buffaloes.

Gujarat

S.M. Patwardhan and S.M. Patel from the BAIF Development Research Foundation reported on farmer experience in Dangs district of Gujarat, a state where there has been very little SRI activity heretofore. [This report was made on the second day, but it fits in here with the other farmer reports.] BAIF is working with tribal populations in a remote area with irregular rainfall, where 70% of the households do not produce enough grain to feed themselves from their own land. Average paddy yields here are 1 ton/ha.

During the monsoon season, 17 farmers in Dangs agreed to try out SRI methods on .05 to .10 ha each, with control plots side-by-side where usual methods were employed. These farmers had a yield of 2.95 tons/ha on their control paddy plots, so they appear to be somewhat better situated than typical farmers in the district. With SRI methods, their yields averaged 5.37 tons/ha, which was 80% more. These are very high yields to achieve without irrigation, just rainfall.

Of much interest was a slide showing how different rice varieties responded respectively to SRI practices under these rainfed conditions. The highest relative increase was with local varieties; the highest absolute increase was with hybrids:

	Conventional methods (kg/ha)	SRI methods (kg/ha)	Increase (%)
Local varieties	1,853	3,816	106
Improved varieties	3,400	5,390	60
Hybrids	3,094	6,027	95

BAIF reported that at 5 days after transplanting, the trials had been subject to a 10-day dry spell. This caused major losses in the control plots, while on the SRI plots, increases in biomass were observed. Farmers' observations were: SRI reduces seed requirements; with SRI there is an absolute necessity of weeding; with SRI, proper leveling of fields is very important; and farmers lack practice in using organic manures. Also, farmers observed that the use of organic matter alleviated water-stress problems. Pictures below showed differences in root growth (SRI roots on left) and rice plants (SRI plant on right).

Himachal Pradesh

A similar report was given by Tilak Raj from Kangra district in Himachal Pradesh where People's Science Institute has also been introducing SRI, through local NGOs like CORD, the Chinmaya Organisation for Rural Development. Tilak has only 0.24 ha of land, all paddy land. His paddy yield previously averaged 5.625 tons/ha, and this gave him only 1.15 tons to feed his family of four.

With SRI, Tilak has modified his water management in the same way that Rikeshwar reported from Uttarakhand. He uses 12-day instead of 30-day seedlings. His yields with SRI methods have not gone up much as Rikeshwar's – 6.0, 6.25 and 7.5 tons/ha in the past three years. However, he is very pleased with SRI because he now needs less seed and uses less water, and also saves labor time. (Another confirmation that SRI can reduce labor requirements rather than being labor-intensive.) With SRI, he is producing 40% more fodder, which is important for feeding his livestock, and his costs of cultivation have been reduced by 30%, going from Rs. 20,100/ha to Rs. 14,400. This has raised his net income by 60%, from Rs. 52,150/ha to Rs. 83,000/ha.

The constraints that Tilak identified were: Due to excessive rainfall, the nursery can get spoiled; effort is required to operate the weeder; and marking small and irregular fields for transplanting is difficult. The lessons learned are: More filled seeds are obtained in a SRI crop; there are fewer weeds in the crop; the crop is less subject to lodging; and when there is delay in the growth of the crop, the crop can be damaged by cattle. He said that in his village they are also experimenting with adapting SRI methods to their wheat crop, referred to as 'system of wheat intensification' (SWI).

Tamil Nadu

The most enthusiastic farmer report was from Tamil Nadu, from P. Baskaran, president of the SRI Farmers Association –Thumbal in Salem district. He reported that paddy yields in his area have been 2.9 to 5.8 tons/ha, but with labor constraints and high costs that have made paddy production less and less attractive. In August 2007, TNAU staff with the IAMWARM project introduced farmers in Thumbal village to SRI. "At first, nobody would come forward to follow the methods of SRI." But more than 200 acres were planted with these new methods last year, and farmers found they could reduce their labor requirements by 30% while getting higher yields. This year, about 90% will plant SRI without subsidy, Baskaran said.

Because of their satisfaction with SRI, farmers in Thumbal formed an association to train other farmers and promote the spread of SRI in their area. One goal of the Association is: "Avoid wastage of seeds (we feel it's a crime)." The Association aims to help farmers reduce their costs of production and thereby to further increase their incomes.

Of particular interest in Baskaran's presentation was a modification he reported in the use of the cono weeder. With what he called 'the Raji method,' the farmer stands in one row and 'weeds' in the adjacent one. He holds the cono weeder differently with his hands, pushing and pulling the cones back and forth in the other row. From a standing position, he can cover 3.5-4.5 meters with the Raji method, Baskaran said, compared with 1-1.5 meters using the present weeding technique, where he just pushes the weeder ahead of him up and down the rows across the field.

This innovation, Baskaran reported, saves time and energy, reducing the manpower needed for weeding and saving money. It reduces the number of steps/100 m2 from 338 to 78, by one accounting, and it reduces the time required to weed such an area from 48 minutes to 28 minutes. The number of hours needed for weeding an acre is thus reduced by 43%, from 32.5 to 18.5 hours. This could be a very big contribution to SRI progress.

With pride, Baskaran showed pictures of visits to the Thumbal SRI Farmers Association from the Minister of Agriculture, the Vice-Chancellor of TNAU, and Dr. T. M. Thiyagarajan, the TNAU faculty member who started SRI evaluation in 2000 and who has been the key person for getting SRI established in Tamil Nadu. (TMT has recently joined WWF as a consultant for evaluating and promoting SRI.) Baskaran said that in the past year, 2,500 farmers have visited his Thambal village to learn more about SRI methodology. He invited everyone at the symposium to visit his village and to see their results in person.

A final report from Tamil Nadu was titled: How a Farmer Obtained Higher Productivity in Paddy by Adopting SRI Methods. The farmer referred to in this title was K. Pitcha in Dindigul District, who, as explained by his agricultural laborer, Ganesan, could not come to the symposium in Coimbatore "due to his old age." Therefore, Ganesan said, "I have come to make a powerpoint presentation regarding the higher

(Contd. on page 13)

SRI - More a Matter of *Degree* than of *Kind*


Norman Uphoff

Results confirm that SRI should be understood in terms of a number of principles, to be applied through practices that should be adapted to local conditions, rather than as just a set of fixed practices themselves. The better these principles are understood, and the more skillfully they are applied, the better will be the results, not just in terms of yield but also in other ways so that rice plants can perform better to meet the expectations of farmers and consumers.

The questions *what is SRI?* and *what is not SRI?* are of more interest to researchers or administrators than to persons involved in rice production. For the most part, farmers and the NGOs or extension personnel working with them to improve yields and incomes from rice are interested to see *whether* and *to what extent* the results reported for SRI can be achieved under their own local conditions -- by changing the ways that rice plants, soil, water and nutrients are managed. Often they face certain constraints, such as water control or shortage of biomass, that make it difficult to utilize all of the recommended practices, or to utilize them as fully and as well as would be ideal. While it is desirable to have some agreement on what constitutes a *minimum set* or *basic application* of practices to represent 'SRI' in some meaningful way, it is first important to be clear that SRI is more *a matter of degree* than *a matter of kind*. This means using the term 'SRI' more generally as an *adjective* than as a *noun*, more appropriately as a descriptor than as a classification.

Much confusion and controversy about SRI has derived from *reductionist* ways of thinking about it, trying to put SRI into a kind of definitional 'box' -- as being *only this* or *always that* or as *nothing more than* certain specified practices. Understanding and promoting SRI this way is unfortunate and not very productive. It is mostly 'academic' to ask *whether* some set of practices is or is not SRI?

There is a legitimate concern that we have agreed-upon *criteria* to permit us to conclude that some sets of practices do not represent SRI sufficiently to warrant either crediting 'SRI' or blaming it if results are, respectively, good or bad. Further, if NGOs or governments undertake to spread or promote SRI practices (note how the term is used here as an adjective, not as a noun), they can reasonably expect to have some defensible basis on which to evaluate their success and the impact of the methodology.

SRI is certainly more than **the set of practices** that grew out of three decades of observation and experi-mentation by Father Henri de Laulanié in Madagascar. These practices are the most visible expressions of SRI reasoning and experience, and they are the most proximate causes of SRI success. However, good results can be achieved by using most combinations of these practices, even if there is good documentation that the best results come from using all the recommended practices together, and from using them as recommended. This is discussed below.

As suggested in my paper for the 3rd SRI National Symposium at Coimbatore, SRI can be understood as **a set of principles**, such as *transplanting seedlings with optimally wide spacing*. This is a more general proposition than the recommended practice of transplanting seedlings singly and in a square pattern. So is the broad principle of *maintaining mostly aerobic soil conditions*, which does not specify how this is to be done. Farmers can decide for themselves, based on their technical possibilities and on time availability, whether to do this (a) through regular, small applications of water (*le minimum de l'eau*) or (b) by alternate wetting and drying (AWD). Learning and understanding these and the other SRI principles is more important than just implementing certain recommended practices. But in fact, these principles and practices represent different levels of generality/specificity.

The principles themselves are understandable and explainable in terms of **a significant body of scientific knowledge** based on decades of research in many countries. SRI can be presented in scientific terms rather than as a set of principle or practices. For example, the *reason* why wider spacing gives higher yield is because it enables all leaves in the canopy, not just the upper ones, to be fully active photosynthetically. With wider spacing, the plant's lower leaves can contribute to its stock of photosynthate rather than draw upon this for their own metabolism. Also, the plant's roots are better nourished because they depend primarily upon the lower leaves for their supply of carbohydrates. With wider spacing, they can also grow more profusely and access a larger volume of soil. Thus, SRI can be presented in terms of scientific knowledge.

And ultimately, SRI can be seen as a **paradigm** for rice production, or even as a philosophy. Paradigms focus on some factors and exclude others. The Green Revolution paradigm focused on *genetic improvements* and the *use of external inputs*, while SRI is not based on either of these factors. It focuses attention on the realization of *existing genetic potentials* and on mobilizing *endogenous processes within soil systems* that affect soil fertility and sustainability. The result of SRI practices,

when well and appropriately followed, is to produce (a) very large, healthy and long-lived **root systems**, which nourish and protect the plant, and (b) abundant, diverse and active populations of beneficial **soil organisms**. Taking these two factors seriously represents a paradigm shift of some magnitude.

Much remains to be learned about both of these factors, which have had practically no role in Green Revolution scientific research or practice. The 'bottom line' for evaluating any use of SRI practices is whether they succeed in producing (a) large, effective **root systems** and (b) **soil systems** that meld in dynamic, sustainable ways their constituent parts: mineral elements and nutrients, water, air, organic matter, and the myriad micro-, meso- and macro-organisms that can maintain a productive soil food web. SRI is best judged not by the following of prescribed practices but by whether these practices have promoted root growth and performance, on the one hand (something usually visible just by pulling up rice plants and assessing the size and color of their roots), and soil life and vigor, on the other (less easily inspected than roots, but something quite visibly contrasting to 'dead soil').

Regarding SRI in Terms of Practices

What is most essential to achieving these two results, which culminate in crop yield, resistance to pests and diseases, tolerance of drought and other climatic stresses, better grain quality, etc.? When I explain SRI to farmers, for simplicity's sake, I do at some point 'reduce' SRI to a set of six practices. (I confess that I usually give less attention than I should to land preparation, nursery management, and seed selection; these are also very important for getting best results with SRI, but these practices apply for rice-growing with or without SRI.) I explain SRI operationally with the following recommendations:

If transplanting, use young seedlings, 8-12 days old, and certainly no more than 15 days, to preserve the plants' growth potential. (In fact, direct seeding is becoming an option.)

Avoid trauma to the roots by transplanting quickly (<30 minutes from nursery to field) and shallow (1-2 cm), taking care not to invert the root tips as this delays resumption of growth.

Give plants wider spacing – preferably *one plant per hill* and in *square pattern*, starting with 25x25 cm spacing, to give roots and leaves more room to grow profusely.

Keep paddy soil moist but unflooded – so that the soil is mostly aerobic, and certainly *not continuously saturated*, as this creates anaerobic conditions that affect roots and soil biota.

Actively aerate the soil as much as possible, using a rotating hoe to control weeds, doing the first weeding at 10-12 days after transplanting; and then 2-3 more weedings at same interval.

Enhance soil organic matter as much as possible to 'feed the soil' as well as to nourish the plant.

SRI was not developed by Fr. de Laulaniè as an 'organic' farming system. In the 1980s, he used chemical fertilizer like everybody else, because it was thought to be necessary and because with government subsidies it was relatively cheap. When the subsidies were removed at the end of the decade, he and the farmers working with him began using compost because fertilizer was no longer affordable. And they discovered that they could get even better results with compost when using it also other SRI practices: young seedlings, wider spacing, no flooding, active soil aeration, etc.

Association Tefy Saina, the NGO which Fr. de Laulaniè established with his Malagasy colleagues, does not consider organic fertilization as a necessary of SRI. Rather, they regard compost as an 'accelerator' of SRI. If farmers have enough available labor time and enough access to organic matter, organic SRI production is highly recommended. But it is not, in Tefy Saina's view, a defining characteristic of SRI. I follow the Tefy Saina view in recommending the application of 'as

much organic matter as possible,' but in not making organic fertilization a defining characteristic of SRI practice.

The Evolution of SRI

It is marvelous to see how the original concepts and practices of SRI have been evolving in the hands and minds of farmers and their collaborators, both governmental and NGO.

- Some farmers in China and Cambodia have started to practice **zero-tillage, raised-bed SRI**, which I think will become increasingly more common in the future, because it can save labor as well as enhance soil fertility, as well as being very efficient in raising water productivity.

- In eastern India, northern Myanmar and central Cambodia, tens of thousands of farmers now practice **rainfed SRI** where there are no irrigation facilities. These farmers manage rainwater as best they can to avoid suffocating the roots of their rice plants. They have no possibility of applying small amounts of water daily or even of practicing alternate wetting and drying. I consider their rainfed SRI to be a very commendable version of SRI. Indeed, it is also very productive as in India, average rainfed SRI yields are about 7 tons/ha, a yield that most *irrigated* rice farmers would envy.

- Increasingly, farmers in a number of countries are experimenting with **direct-seeded SRI**, keeping the principles of wide spacing, aerobic soil, etc., but with no nursery and no transplanting. This can save them up to 40% of the labor otherwise required. While this alternative may not give them the highest possible SRI yields, it gives high returns per hour of labor. One version of this is to broadcast germinated seed on a prepared (leveled and puddle) field at

five times the seed rate otherwise used for 'normal' transplanted SRI. Then 10 days later, the field is 'weeded' with a rotating hoe as would have been done if it had been transplanted. This eliminates 80% of the young plants and creates roughly the same geometric square pattern of widely-spaced plants as if transplanting had been done.

- Beyond rice, we are seeing farmers and various NGO or governmental partners applying SRI concepts and methods to **other crops**. There are now various systems of wheat intensification, *agi* intensification (another SRI), sugarcane intensification, mustard intensi-fication, cotton intensification, etc. coming up in various parts of India. All are 'inspired' by SRI experience.

Do these variations qualify as 'SRI'? One might argue convincingly for excluding the non-rice variations; but all are derivative from the original insights and recommendations of Fr. de Laulanié. They have proceeded with the same empiricism, the same desire to improve farmers' success in rice production, and the same respect for nature and the environment which animated the original assemblage of SRI methodology.

What Is a Minimum Expectation for SRI?

Many persons will like to have some *minimum* specification of what qualifies as SRI, setting a standard below which we will not consider that what is practiced as warranting the designation of SRI. I would opt for a simple 'majoritarian' definition, allowing for some flexibility in the degree to which any particular practice is followed, and since I focus on six practices as an operational definition of the ideal or complete SRI, I would expect that at least four of the six practices be followed to some recognizable extent. Just three out of six practices would represent only 'half SRI,' and not a majority (>50%). So I suggest a *two-thirds* rule, maintaining some tolerance for adjustments for be made for local conditions and farmer exigencies.

For a farmer to say that he or she is 'practicing SRI,' I would expect him/her to have introduced at least *four* (any four) of the following six changes in conventional rice-growing practice:

1) **Younger seedlings** – preferably 8-12 days old, but older if necessary, but not more than 20 days old.

2) **Careful transplanting of single seedlings** – gentle removal from the nursery, quick transport to the field, attention to how the seedling root is laid into the soil (as horizontal as possible); if soil is not very fertile, farmers could transplant two seedlings per hill for a few years until fertility improves.

3) **Wider spacing** – with at least 25x25 cm spacing in a square pattern, although if the soil is not very fertile, 20x20 cm might be used for a few years until fertility improves.

4) **Water management** – efforts made to avoid continuous saturation of the soil, and to maintain mostly aerobic soil conditions, whether with minimum applications (and some periods of drying) or alternate wetting and drying.

5) **Active soil aeration** – using a mechanical weeder to both do this and control weeds at the same time; some farmers may want or need to do hand weeding or even weed control with

herbicides, because they don't have access to a weeder or don't have the labor time; this would not 'disqualify them as SRI farmers,' if someone is making such a judgment, if they are doing four other practices.

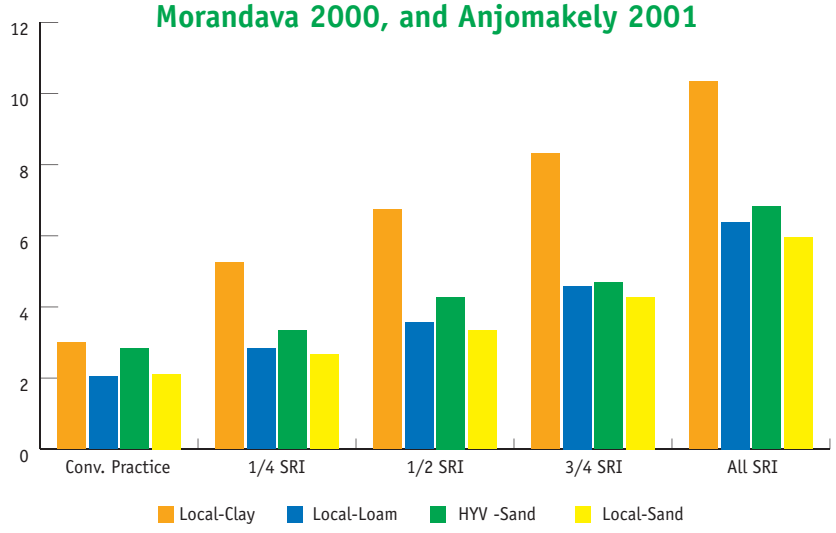
6) **Enrichment of soil organic matter** – SRI does not require farmyard manure, as any decomposed vegetative biomass will give good (if not the best) results, provided that the other recommended practices are being use.

Making two-thirds of these changes would get a farmer started down the path of utilizing and benefiting from the full set of practices, although we know from factorial trials that the biggest positive impact comes from 1. and 4. Maybe this two-thirds criterion should be 1. plus 4. Plus and two of the other four. Farmers' needs and productivity are of course the criteria to use for judging whether they should continue and intensify their use of SRI practices once they have started with 'minimum SRI.' Farmers should not move toward the 'maximum SRI' just for the sake of 'practicing SRI.'

Evidence Supporting 'Ideal SRI'

When taking a flexible and evolutionary approach to SRI, it is important that farmers be informed about the opportunities and benefits to be derived from use, under most conditions, of the full set of practices. SRI training programs tend to present and recommend the 'ideal SRI,' as Fr. de Laulanie developed it, knowing that for various reasons the 'actual SRI' that farmers will actually implement, certainly the first season, will be less than full or thorough. The description of 'ideal SRI' that I present to farmers constitutes a kind of *standard* to be moved toward. It derives from the experience of now tens of thousands of farmers in many countries who have used these recommendations with positive results, and also from factorial trials done in Madagascar for theses submitted to the Faculty of Agriculture (ESSA) of the University of Antananarivo. Anyone interested in SRI should study these factorial results, available on the web at: http://ciifad.cornell.edu/sri/proc1/sri_10.pdf

Figure 1: Yields from Different Combinations of Rice-Growing Practices in Madagascar, Morandava 2000, and Anjomakely 2001



Large numbers of replicated trials of different combinations of practices, over 500 in all, were laid out according to random block design and done in two **contrasting agroecological settings**. That these showed the same **patterns of impact** from SRI practices, separately and collectively, gave us confidence in the practices that Fr. de Laulanie recommended. The trials done at Morandava on the west coast of Madagascar in 2000 (N=288) were carried out in a *tropical climate, at sea level, with poor sandy soils*. They evaluated also the effects of using SRI methods with a *high-yielding variety (HYV) or local variety*. The trials conducted in the central highlands at Anjomakely (N=240), in a *temperate climate at 1,200 m elevation, with better soils*. They also evaluated the effects of using SRI methods on *better (clay) soils vs. less fertile (loam) soils*. The trials of the different combinations of practices evaluated were done according to standard agronomic methods, and all results reported here are from *six replications* of the different combinations of practices tested.

Because evaluating **spacing** between plants as well as **number of plants per hill** would have doubled the number of trials required, and evaluating the effects of **soil-aerating weeding** would have doubled this number again, the SRI practices evaluated were: **8-day seedlings** vs. 16 or 20-day seedlings; **1 plant per hill** vs. 3 plants; **water management** vs. continuous flooding; and use of **compost** vs. chemical fertilization. With just these four practices, we saw overall a *tripling of yield* from use of SRI vs. conventional practices. Results of these two sets of factorial trials are summarized in Figure 1.

'One-quarter SRI' in Figure 1 means that just **one** of the four practices listed above was used. The average effect of adding **any one SRI practice** to conventional practice was to increase yield, across these four sets of comparisons, by about 1 ton/ha. Another ton/ha was added to yield when using **any two** of the four, and an additional ton/ha was achieved by using **any three** of the

four. Going to 100% SRI – **using all four practices** – added almost 2 tons/ha, indicating synergistic effects from using all the recommended practices.

Our observations and other research indicate that there could have been *an even greater increment* to 'full SRI' if the trials had included differences for **plant spacing** (wider vs. closer) and **weeding methods** (soil-aerating vs. hand or herbicide weed control). However, assessing six factors plus variety and soil effects, all at the same time, would have required close to 1,000 trials!

Promoting Ideal vs. Actual SRI

In actual practice, as seen from the field trips during the 3rd National SRI Symposium held in Coimbatore, December 1-3, there are a lot of farmers who say or think that they are practicing SRI, but who are, in fact, only using some of the methods, or are not using all of the methods in the way or to the extent that is recommended according to 'ideal' SRI practice.This can be regarded as something negative – 'these farmers are not really doing SRI!' – or as something positive inasmuch as even *partial or imperfect use* of SRI methods is already giving farmers some (and often substantial) benefit.These farmers can achieve *still much larger gains in productivity* for themselves (and for their state) if and when they move beyond their current version of 'actual SRI' and

Learning and understanding SRI principles is more important than just implementing certain recommended practices.

closer to the 'ideal SRI.' We know that the latter can achieve still greater benefits, in terms of crop yield, water saving, pest and disease resistance, drought-tolerance, grain quality, cost reduction, etc., to the extent that *all* practices are used and are used well.

We are all familiar with the proverbial conundrum about a water glass being 'half empty' of 'half full.' We can focus on the shortcomings of present practice -- half-empty 'actual SRI' -- or we can focus on the possibilities that a better understanding and fuller use of SRI principles and practices can accomplish -- moving toward 'ideal SRI' -- based on the present half-full SRI we now so often see.

Calibrating Benefits and Tradeoffs

When I present SRI to farmers, I describe it as 'an opportunity' rather than as 'a technology.' I always want them to understand the **reasons** why we recommend certain changes in common practice. It is, then, for them to decide for themselves how much they are willing (and able) to change their present practices to take advantage of this opportunity. Maybe they don't have enough labor at planting time to use young seedlings and to do this carefully, even with many fewer seedlings. Or maybe they don't have enough water control to be able to manage reliable application of smaller amounts. Such constraints, real or just perceived, will limit the extent to which farmers are willing and able to take up SRI fully.

Table 1: Number of times of weeding by SRI farmers, Morang district, Nepal, main season 2005

Times of weeding	Number	Percentage	Yield with SRI methods (Mt/ha)
One	32	8.0	5.16 (range 3.6-7.6)
Two	366	88.6	5.87 (range 3.5-11)
Three	14	3.4	7.87 (range 5.85-10.4)
Total	412	100	SRI average: 6.3 Mt/ha Conventional average: 3.1 MT/ha

Source: Morang District Agricultural Development Office, Biratnagar

Table 2: Impact of SRI Farmer Practices on Paddy Yield, Uttarkhand and HP, 2008

Number of weedings	Yield (tons/ha)
One	5.0-5.5
Two	6.0-6.5
Three	7.0-7.5
Age of seedlings	
> 23 days	4.0-4.5
16-23 days	5.5-6.0
10-15 days	7.0-7.5

Source: Powerpoint presentation by Debashish Sen (PSI) to 3rd National SRI Symposium, TNAU, Coimbatore, December 2, 2008

Farmers should know what are the **tradeoffs** when they settle for 'partial SRI' and do not attempt to achieve the 'ideal SRI' – how much production are they giving up? Only the 'ideal SRI' will give the super-yields that have been reported from certain farmers who understood and utilized the full set of principles that constitute SRI as a modification of current practices. We should provide farmers with data on the relative gains in productivity which different SRI practices make possible.

In the 2005 main season in Morang district of Nepal, Rajendra Uprety gathered through his extension staff rather complete data from 412 farmers who used SRI methods. They had been urged to do at least two weedings, and almost 90% followed this recommendation, although some did only one weeding, and a few (14) did three weedings. The data in Table 1 show that the

latter group who did three weedings got a 'bonus' of 2 tons/ha greater yield. The value of this increment was many times more than their cost of doing a third weeding.

In its presentation to the recent national symposium on farmer experience with SRI in the states of Uttarakhand and Himachal Pradesh, People's Science Institute (PSI) of Dehradun reported that *additional weedings* there, together with other SRI practices, can add about 1 ton/ha to SRI yields, just as the *use of younger seedlings* is enhancing rice productivity (see Table 2). Note that at these higher elevations in the Himalayan foothills, what constitutes a 'young seedling' (how many days old?), given the colder temperatures there, is several days older than in a warmer climate. However, we see that the same principle holds, that 'young seedlings' give better results.

These results confirm that SRI should be understood in terms of a number of **principles**, to be applied through **practices** that should be adapted to local conditions, rather than as just a set of fixed practices themselves. The better these principles are understood, and the more aptly they are applied, the better will be the results, not just in terms of yield but also in other ways so that rice plants can perform better to meet the expectations of farmers and consumers.

Understanding the distinction – and the dialectical relationship – between 'ideal SRI' and 'actual SRI' can help us to explain, promote and advance the use of SRI principles and practices. We should always avoid dogmatic approaches to SRI, keeping it always something empirical -- a matter of observation, evaluation and innovation, rather than a matter of faith or belief. I think it helps to consider SRI explicitly as a matter more of degree than of kind, and it is the principles and the results that matter more than any names or formulaic practices.

Reports of Farmer Experience... (Contd. from page 7)

productivity obtained." He described how they had achieved a yield of 14.2 tons/ha the previous season using SRI methods on 2 acres of the landowner's 9 acres of rice land. They used younger seedlings, wider spacing, water control, etc. The number of hills/m2 was 20. The average number of productive panicles/hill was 36. The number of grains/panicle averaged 119.

With SRI methods, the cost/ha of cultivation was calculated as declining 27% – from Rs. 31,750 to Rs. 23,325. Ganesan showed how with the higher yield and lower costs, Pitchai's net profit had gone up by 125% – from Rs. 40,250 to Rs. 90.275. Even if these data might be overstated (and there was no evident reason to think that they were), the differences that Ganesan reported were of such a magnitude that the agronomic and economic advantages of SRI methods could not be dismissed as 'due to measurement errors.'

Norman Uphoff is Program Leader for Sustainable Rice Systems, Cornell International Institute for Food, Agriculture and Development (CIIFAD)

A Recap of ... (Contd. from page 4)

Dr. Gautam's closing message reminded the participants of the global food security challenge in the context of population pressure and increasingly compromised natural resources. He then proceeded to provide a wide-ranging overview of technical issues and initiatives which placed SRI within a broader context of agricultural innovations. He furthermore pointed out that other innovations, IPM, for instance, had faced similar uphill struggles, just as SRI is facing currently. A flexible and adaptive approach will therefore be vital. He closed by calling for all stakeholder agencies to "pull-together", and to this end declared the willingness of his own institution, ICAR, to adopt any new technology that helps the farmer.

In closing this brief account of one participant's recollections of the Symposium, it is fair to say that all of the participants took full advantage of their time at the symposium. New friendships and partnerships were forged while the myriad informal discussions around the tea tables and meal buffets were as comprehensive and incisive as those taking place in the formal sessions. It is hoped that everyone took their enthusiasm home with them; along with all the new things that were learned and experienced.

Finally, all participants must surely share this writer's sincere gratitude and appreciation of the hard work and excellent welcome of TNAU, and join him in wishing its staff every success as they continue to pioneer and replicate SRI in Tamil Nadu.

Philip J Riddell is an International Advisor for Water Policy and Management, and Consultant to WWF

For more on the Symposium visit www.sri-india.net and http://ciifad.cornell.edu/sri/

Reflections

It was nice to meet the delegates of SRI conference at Coimbatore.The presentations made by different groups and scientists were very informative. SRI has shown special promise.The technology can help in saving seed and water, and will provide high harvest to a farmer. I also find its role in hybrid rice production encouraging. The adoption of the full package of SRI practices with niche-based amendments / modifications is likely to be rewarding. The adoption of integrated crop management (ICM) technology package like SRI may be helpful in enhancing food production under National Food Security Mission (NFSM) of Government of India. It was very pleasant movement to meet and share the experience with Prof. Norman Uphoff and his wife who have devoted their life time for popularizing SRI in Madagascar, India and other countries. I compliment WWF for regularly organising such conferences.

Dr. P. L. Gautam is the Ex-DDG, ICAR and
Presently the Chairman for the National Biodiversity Authority, Chennai

This 3rd national SRI symposium marked continuous growth of interest and involvement with SRI in India. From about 150 participants from many parts of India attending the first symposium in 2006 in Hyderabad, there were 250 participants from almost all parts of India in the second symposium in Agartala. This year, there were 350 participants from states and territories that contain more than 99% of India's population. So, SRI has in these two years become a phenomenon known throughout almost all the country -- and the northeastern states that could not be represented in Coimbatore have some knowledge of the opportunities SRI offers by looking at the results being obtained in neighboring Assam and Tripura. A lesson that I took away from the meeting was that we need to keep looking ahead with SRI, to its continuing evolution and wider application of its key concepts and methods, to rainfed areas and other crops, keeping a critical eye on our experience with irrigated rice. SRI insights and practices will not be – and never were claimed to be – relevant to all areas and to all farmers. But with appropriate experimentation and adaptation, I think that they can be made more widely relevant that we currently see and understand.

Dr. Norman Uphoff is the Program Leader for Sustainable Rice Systems, Cornell International Institute for Food, Agriculture and Development (CIIFAD)

The success stories of Afghanistan and Nepal extension workers, presented during the Symposium, deserve all appreciation and praise as they are working in not only hostile agro climatic zones but also in an extremely hostile political situation too. Their achievements in yield levels have made me feel that we (in India), the major paddy-growing country, are yet to tap its real potential. We need to be more organized in our approach, which should be a bottom-up approach. Instead of fixing targets for SRI and enticing the farmers to adopt SRI, the initiative should come more from the farmers. They should take up SRI for its production and productivity capabilities alone and not for the sake of subsidy. During the field visit, on second day of the Symposium, when I heard somebody quip, "whether these kind of plantings are called SRI?", I told them that those farmers were on the verge of quitting rice farming and switch over to coconut cultivation but only due to the sustained persuasion by the extension staffs, they are once again back to rice cultivation and have adopted few principles of SRI cultivation like wider planting, lower seed rate (10 kg) and application of Cono weeder in one direction. The best part is that

- The farmers are being once again motivated to go back to paddy cultivation and
- The farmers are satisfied with the outcome.

To scale SRI, I suggest:

- SRI GROUPS must be formed at the *Firka/Taluk* (a subdivision of a district in South Asia) level or the village level.
- Group of like-minded farmers who are thoroughly convinced of the real benefits of SRI must be encouraged. Such groups must consist of farmers, scientists and extension workers.
- There should not be any room for partial or semi-SRI. The group should adopt all the salient features of SRI under the guidance of the scientist and extension staff.
- Subsidy and incentives may be provided to the group, instead of the individual farmer.
- The group may raise SRI community nursery in greenhouses and procure power soil aerator-cum-weeder.

- Demo plots to be organized on the road sides.

If this is done, then the success stories of these groups will surely encourage others too to take up SRI.

V.K.V. RAVICHANDRAN
Farmer from Chennai

The Symposium was successfully organized with a good number of participants from NGO sector, the farmers, the scientists, extension people, and others. Presentations of farmers' own experiences from various states were appreciated. The publications brought out during the symposium are quite informative, and the panel discussion was highly appreciated. The ideas / inputs elicited during the panel discussion should be documented separately and circulated widely for all the concerned.

Dr. P. Punna Rao
Deputy Director of Extension
Acharya N.G. Ranga Agricultural University (ANGRAU)

It was a great experience. From the technical Session I learnt that SRI cultivation requires less water and proper nutrient management to obtain high yields, and for large spread of SRI adoption, most important is farmers' awareness.

Swapan Barman
Ph. D. Research Fellow, Dept. of Agronomy, Bidhan Chandra Krishi Viswavidyalaya (BCKV)

All the subjects under different sessions were well covered. Good coverage of researchers (national and international) followed by NGOs and officials made the symposium comprehensive. The panel discussions were able to synthesize most of the points covered under individual sessions.

Overall, the symposium provided a new way forward to the researchers working on SRI. Some of the constraints expressed by the practioners of SRI need to be examined in terms of research and policy interfacing.

K. Palanisami,
Director, IWMI-TATA Policy Research Program, IWMI, South Asia Regional Office, ICRISAT, Patancheru

The symposium highlighted the scale at which SRI is in operation (more than 200 districts of India), and it clearly brought out the potential and benefits of SRI in different agro-ecological zones of India. The most useful input from the symposium for our work was to realize the utility of staggered community nurseries and scope for direct seeding to cope up with aberration in rainfall for adoption of SRI, especially in the rainfed areas. The scope of involving Panchayati Raj Institutions for up-scaling was another useful input obtained from the Tripura experience.

To make future symposiums more effective, it is important to have interactive session of SRI farmers from different regions and experts. This would be useful for the farmers as well as in identifying roles and responsibilities and areas of improvement for all stakeholders.

But three important aspects which need attention and action are:

1. SRI is still evolving and the package of practices needs to be modified as per the agro-ecological zones, and farmers need to be provided flexibility for adoption. On-farm research needs to be undertaken for improvement in menu of practices, improved implements, application on other crops, suitable varieties, etc.

2. A well-thought-out strategy is needed for scaling-up SRI. It should include
   (a) large-scale capacity building strategy (master trainers, village-level resource per-sons, etc.),
   (b) networking among stake-holders (convergence of schemes, agriculture, irriga-tion, banks, research institu-tions, agricultural univer-sities, panchayati raj institu-tions, etc.), and
   (c) incentives to farmers (equipments, manure, bio-pesticides, market, etc.).

3. Study of disadoption by SRI farmers, especially looking into the reasons for disadoption and constraints under SRI. This will help in improving and modifying the recommendations of practices.

The whole discussion on "What is SRI?" at the third day of the symposium was very interesting. There is lot of variations in the way that farmers have adapted SRI across the regions. This became more evident after the field visits conducted on the second day of the symposium. Various participants raised their concern over what should be prescribed as SRI and asked for setting up certain minimum norms for labeling a package of practices as SRI. At the same time, Dr. Norman Uphoff tried explaining that SRI is based on the six basic principles and farmers need to be provided flexibility, while helping them understand the usefulness of the principles of SRI.

Debashish Sen
Director, CPWD
People's Science Institute

SRI symposium at Coimbatore was a perfect platform for exchange of ideas among various farmers coming from different parts of India. It was very interesting for me to know how farmers modified the design of weeders based on their needs by utilizing the available resources. Experience of speakers on seed treatment and adoption of organic measures for pest resistant was useful for me. It was also helpful for me to know how farmers from arid areas establish nurseries using polythene. Lecture of Prof.

Norman especially on six SRI principles was very interesting for me.

Rikshewar Prasad,
Farmer from Uttarakhand

It was a great moment for me to attend the SRI Symposium at Coimbatore. The need of flexibility while practicing SRI as expressed by Prof. Norman was very interesting to me. Speakers revealing establishment of small nurseries nearby houses to cope with droughts was very helpful for me. Adoption of SRI according to needs by farmers across the world was also an eye opener. Presentation on various agricultural implements like transplanter, weeder, marker modified according to farmers needs was also very interesting.

Tilak Raj,
Farmer from Himachal Pradesh

At the outset, I congratulate the organizers for the success of the SRI National Symposium at Coimbatore. Its impact will really be enormous in promoting the adoption of the principles underlying this very potential innovation.

Dr. M. Mahadevappa
Director, JSS Rural Dev. Foundation, Mysore
Ex-Chairman, ASRB, Ex-Vice Chancellor UAS, Dharwad

The 3-day Symposium on SRI served as a platform for sharing of experience, package & practice done in India & in other countries like Nepal, Bhutan, Afghanistan, Malaysia, Indonesia and other countries.

On the first day, it was a welcome feature to have the farmer's make their presentations from across the country. Recognizing a farmer like Manonmani is a good practice.

In the 2nd Session of day 1, Dr. Gujja's presentation of scaling up SRI in India was informal and inspiring, especially the district-wise production plan of the country. Appreciable were presentations by Mr. Ravindra on the re- strategizing of SRI for food security and the broad view on constraints & innovations at farmers' level by Dr.Thiyagarajan. We feel that there is still lot of scope for improvement in the SRI practices.

Four parallel technical sessions was a good practice as it saved time and covered wide variety of subjects. Presentation by D. Manohar Vasudas about motorized weeder was interesting for us. We feel that this weeder will become popular with SRI farmers. Presentation by Lotus Foods was good but they didn't come forward with any commercial project at this time. Technical session conducted by Dr. Ayyangar was appreciated.

International session conducted by Dr. Norman Uphoff gave us a broad overview of SRI in other neighboring countries which was highly informative. Production output through SRI in Bhutan was very high. SRI in Afghanistan is appreciated because of the local conditions and hassles. Discussion session by Dr. Gujja was interesting, and such discussions involving farmers should be made a permanent feature.

There is a need to set up a SRI Brigade among SRI farmers. Also there is a lot of scope for improvement in tools, packages and practices in SRI, so we feel that such Symposiums should encourage more of farmers' and scientists' participation.

Kapil Behal, Makhan Singh and Hardev Singh
Farmers from Gurdaspur Punjab

The 3rd National Symposium on SRI impressed me by the progress made on SRI front in different states and the clarity amongst different stakeholders such as Scientists, Field Officers, Extension personnel, Farmers, etc,.

There is a general acceptance that SRI is good for the improvement of the yields and consequent increased profitability and food security. The fact that SRI is being experimented / tried / followed in varied ecosystems through the length and breadth of the country shows its wide acceptance amongst the farmers. There is no doubt among the farmers that if the 6 basic principles of SRI are followed in letter and spirit, there is a guarantee to the reduced cost of cultivation and increased yields & increased profits.

Our endeavor now should be to take up SRI in a mission mode in all Rice ecosystems so that the right emphasis is laid on SRI. Besides, SRI should be combined / converged with other Agriculture / Rural Development Programs such as National Food Security Mission (NFSM); Rashtriya Krishi Vikas Yojana (RKVY); National Rural Employment Guarantee Act (NREGA); Integrated Watershed Development Program (IWDP) so that the huge funds available under different schemes are pooled / converged to arrange for supply of farm implements such as Cono weeders, transplanters etc,. to the small / marginal farmers, particularly in rainfed areas.

Dr G.S.G. Ayyangar
Joint Secretary,
NDMA, MHA, GOI

Meeting the galaxy of SRI promoters from different parts of India and other countries has been the most exciting experience. I was surprised to see farmers in Afghanistan trying to adopt SRI.

Debate over the process of SRI during & after field visit, and Norman's inclusive stance on "defining SRI" helped to understand the missionary zeal that one needs to have to push any idea. However, concerns expressed by other participants also helped to realize that the 'pro-poor elements' of SRI needs to be preserved/ promoted carefully so that poorer farmers

feel excited to adopt SRI. High-cost technology intensive SRI could be scaring to the resource poor smallholders.

To my understanding, the three most important things that need attention and action are:

- The organizers need to form a committee of 'concerned SRI symposium organizers' who will maintain an ongoing relationship/interaction with the SRI promoters / stakeholders and explore/select the unique works are being done by them and help them to document those for the symposium.

- Link the stakeholders or promoters working with similar issues / challenges and help them to work as a team.

- Ensuring the participation of the people in national/regional governance and policy making in the right forum to help them appreciate the challenges that needs their involvement and support.

Dinabandhu Karmakar
Team Leader (INRM)
PRADAN

Thank you WWF- India for your relentless efforts to mainstream SRI promotion with Indian Research and Agricultural establishment. However, I feel, it should be driven largely by farmers and civil society if we have to take it to its real potential, and bring a turn around to the Indian Agrarian scene.

With SRI principles and practices adapted to various ecological niches, using the huge genetic diversity in rice still available with farmers or with Germplasm collections of Research centres, we can increase the quality and quantity of rice in India: thus immensely benefitting farmers directly nutritionally, economically and in the restorations of the farming eco-systems of countrysides making it serve the eco-system functions also akin to Forest diversity. A paddy eco-system with out chemicals can sustain not only much needed fresh water needs of the country but the huge flora of aquatic plants and avian fauna. We need to focus not only on the saving of water in irrigated SRI areas but also work towards policy promotion or integration of water harvesting in Rainfed rice areas on the lines of rich traditional water management practices.

I propose for the next year, 3 or 4 regional Symposiums than the one big national meet to facilitate more grassroots interaction and wisdom into SRI promotion process.

Jacob Nellithanam
Richaria Campaign

The Symposium output has really helped us spread SRI at farmers' level in West Bengal and to conduct feedback research through farmers' participatory method.

Dr. R. K. Ghosh, Professor and Principal Investigator & Area Coordinator, NIWS, GOI, Department of Agronomy, Bidhan Chandra Krishi Viswavidyalaya (BCKV), West Bengal

The Symposium has given us an excellent opportunity to learn about SRI in detail and it boosted our morale to work with more strength for the promotion of the same in Jangaon of Warangal district of Andhra Pradesh. Further, it provided us with an opportunity to directly meet and hear from development agencies, universities, and research institutions about the progress in promoting the SRI method.

R. Lingaiah
Secretary, Centre for Rural Operations Programmes Society (CROPS), Jangaon, Andhra Pradesh

Compared to the first two symposia, the response in terms of participation was appreciable.

It was gratifying that one of the farmers from Andhra Pradesh who expressed his anger for not considering aerobic rice for promotion, on the first day, got himself convinced of the benefits of SRI on the third day. There were good number of SRI tools exhibited. However, demonstrations in the field would have been more useful. There should be a special call to invite innovative tools to be demonstrated, if needed financial support should be extended. The scientist involved in developing the three-row power operated weeder was very convinced of its success but no opportunity was there to see its performance in the field.

Dr. T.M. Thiyagarajan
Consultant, ICRISAT-WWF Project, and former Dean/Director, Tamil Nadu Agricultural University, Coimbatore

Reflections

International participants

Lotus Foods was honored to participate in the 3rd SRI Symposium. It was a perfect opportunity to meet farmers from all across India, who are practicing SRI, and to hear and learn from their experiences. As farmers begin to address scaling up SRI, it is an ideal time to begin connecting them to international markets, a long-term objective of Lotus Foods.

Caryl Levine and Kenneth Lee,
Lotus Foods Inc, El Cerrito, California

I am very much delighted for being able to attend the 3rd symposium at a wonderful venue in South India, which all together provided a good learning experience. It was an excellent forum for exchange of ideas and knowledge of significant pertinence to human survival i.e. increasing the productivity of rice. These interactions are vital in broadening knowledge and skills outside of what we know. Further, it opened up eyes to some other parameters to look

at my own work. Thus, my participation at the symposium has so many good things to take and reflect on like, how to produce more rice with less resources and inputs.

Certain measures to help scale up SRI:

- To have Joint regional research study with support from scientist and farmers on various aspects of SRI technique under different ecological conditions.
- Have state and central government support on SRI activities.
- Design an efficient weeder for SRI rice farmers

Last but not the least, everything was wonderful and everyone very helpful. Special thanks to Professors and staff of TNAU.

Karma Lhendup
Faculty of Agriculture
College of Natural Resources
Royal University of Bhutan

It was a well-organised and highly interesting conference.

Dr. Harro Maat,
Wageningen University Technology & Agrarian Development, Netherlands

The Coimbatore symposium has been a great learning experience for me and opened many avenues for networking. Faculty at the National University of Malaysia have formed a working group on SRI and have gotten some modest funding to begin field evaluations in February. Therefore, this provides an institutional basis for putting things learned at the symposium to practical use.

About a week after the symposium, through arrangements made by Prof. Iswandi Anas of the National Indonesian Agricultural University (IPB), with whom I got acquainted at the symposium, I was able to attend a training session on organic SRI at the National Organic SRI Center (NOSC) in Nagrak, Indonesia. Two NOSC trainers, Deri Ramdani and Misnan Muliadi, will be coming to Malaysia on 9 January to conduct organic SRI training here and to help me set up SRI evaluation/demonstration plots at 2 sites where the SRI trials/demonstrations will be conducted. They will be here for about a month. I am arranging for farmers, entrepreneurs and academicians to attend this training, for which there is much demand. We will have to limit the participation to 30 persons, including participants from the Malaysian Agricultural Research and Development Institute (MARDI) and the Federal Land Consolidation and Rehabilitation Authority (FELCRA), which will soon begin its own SRI trials and evaluations.

Mr. Ahmad Jatika of the NOSC is talking about setting up some kind of Asian organic SRI association, which will help consolidate and expand SRI activities in the region. On 8 January, Alice Jonge of Ekoventure in Pondicherry (whom I met at the symposium) will be coming over to Malaysia. Also, Annie Mitin, executive director of the Southeast Asia Council for Food Security and Fair Trade (SEACON) is in discussion with me to arrange for a SRI soft launch in Malaysia, which we hope can happen in March or April.

Dr. Anisan Izahak,
National University of Malaysia

The 3rd national symposium on System of Rice Intensification was a great learning experience. There were participants from across India and other countries. This was for the first time that a person from Afghanistan got the chance to share his experiences with other SRI colleagues.

My country has different climate compared to India. We have had very positive results in SRI rice cultivation in Afghanistan in the year 2007 and 2008. I learnt that SRI method supports rice cultivation in any country with different climatic conditions.

At the SRI tools fair, many weeders were on display and this was interesting as in Afghanistan only Mandava Weeder and SRI transplanting machine is available.

Ali Muhammad Ramzi
Natural resource management officer for Aga Khan Foundation, Afghanistan

The first day opening ceremony was exciting. I met and made many friends. I learnt that in India, different organizations are using different strategies to disseminate SRI in their working areas. Baharul's experience with local government (Panchyat) and politicians to disseminate SRI in Tripura was an excellent leaning. Similarly, SRI dissemination through Farmer's Field School (FFS) and farmer to farmer is quite good, and in Nepal, we follow similar strategy. Most of the participant farmers' attachment with SRI was exciting for me and the honor provided to the farmer's leader was great for the further encouragement to farmers' leadership for SRI movement.

I found Indian governments' positive attitude and support for the SRI movement. Similarly, NGO/INGO/Private sectors involvements and their live coordination was stimulating.

Rajendra Uprety
Agriculture Extension Officer,
Biratnagar, Morang, Nepal.

Iraq SRI Initiative

Khidhir Abbas Hameed and Flayeh Abed Jaber

SRI has sometimes been characterized as a 'niche' innovation, successful only under a limited range of conditions, such as acid, iron-toxic soils. The following synopsis of a report from the Al-Mishkhab Rice Research Station in, Iraq, in a relatively arid environment, shows SRI methods giving good results in an 'outlying' situation. It also shows the methods being productive under adverse socio-political conditions.

In this season, we concentrated on three SRI activities: 1) the application of SRI in Al-Muthanna province, 2) improvement of mechanical rice transplanting and 3) using clover crop as a green manure in Najaf and Muthanna provinces.

SRI in Al-Muthanna Province

A Japanese donor read about our SRI activities on the SRI website (http://ciifad.cornell.edu/sri/) and decided to support SRI work in Al-Muthanna province through the International Organization of Migration (IOM) and the Iraq Community Action Program (ICAP) of the Cooperative Housing Foundation (CHF).

The spread of SRI concept among rice farmers was done through extensive trainings in 16 days; 1,600 rice farmers (men) and 400 rice farmers (women) were trained in four locations of Rumatha, Warkaa, Majd and Najmi districts.

As trainings alone were not sufficient for understanding SRI, SRI field demonstrations were established at 16 different sites with 1/4 ha per site. More than 1,200 rice farmers visited 12 SRI fields at different crop growth stages. Farmers were also trained on how to produce organic manure from their farm materials three month before the date of sowing.

Fields were prepared and nurseries established, and transplanting in the field was done with proper spacing using ropes to ensure regular distances between rows (25 cm) and plants within rows (15 cm). Young seedlings of 17-days old were used to transplant one seedling per hill, and only half the usual amount of chemical fertilizer (160 kg/ha) was used. Manual weed control between rows and intermittent irrigation in the vegetative phase was followed. At maturity, samples were taken, and the results are shown in the tables.

The results in the tables indicated that the SRI grains yield increased for all SRI fields, but with different rates, from 17% to 130% compared with traditional practices for the same variety used. The overall average was 7,034 t/ha with SRI methods vs. 4,666 t/ha with farmers' usual methods, a difference of 72.2%. Panicle length increased by 2 cm on average between SRI panicles compared with non-SRI panicles. Spikelets increased by 35% in SRI panicles, while the sterility rate was reduced by about 1/3, from 13.6% to 9.3%. Plant height was raised 10 cm on

Table 1: Results of SRI and non-SRI rice crop in Rumatha district

Farmer name	Culture method	Plant height (cm)	Panicle length (cm)	Spikelets per panicle	Sterility (%)	Panicle number/ m^2	Yield (t/ha)
Abdul Ameer A. Mhawis	SRI	100	24.5	204.8	5	357	8,800
	Non-SRI	80	23	141.4	11.5	264	3,800
Nadhum M. Hamdan	SRI	90	23	148	10.5	363	8,120
	Non-SRI	75	20	102.2	14	266	3,090
Kadum M. Shahaib	SRI	85	22	148.2	7	334	6,600
	Non-SRI	70	18	72.4	20	270	4,540
Ali H. Sultan	SRI	75	20	106	20	302	5,000
	Non-SRI	75	18	80.4	20	251	3,100
Average	SRI	88	22.5	157	10.6	339	7,130
	Non-SRI	75	20	99	16.6	263	3,632

Table 2: Results of SRI and non-SRI rice crop in Warkaa district

Farmer name	Culture method	Plant height (cm)	Panicle length (cm)	Spikelets per panicle	Sterility (%)	Panicle number/ m^2	Yield (t/ha)
Ghmos K. Kumani	SRI	90	23	132.3	13	355	8,615
	Non-SRI	80	20	110.2	15	314	5,140
Mizher Ch. Kaddosh	SRI	95	22	149.8	8	320	7,765
	Non-SRI	80	19	101.1	17	300	4,770
Murad Ch. Kaddosh	SRI	95	23	148.9	10	285	6,030
	Non-SRI	85	20	88.4	17	235	4,970
Anwar F. Kassar	SRI	95	23	136.5	12	300	6,620
	Non-SRI	80	18	95	15.5	299	5,030
Average	SRI	94	23	142	11	315	7,257
	Non-SRI	81	19	96	16	287	4,977

Table 3: Results of SRI and non-SRI rice crop in Majd district

Farmer name	Culture method	Plant height (cm)	Panicle length (cm)	Spikelets per panicle	Sterility (%)	Panicle number/ m^2	Yield (t/ha)
Habbeb Sh. Shaalan	SRI	85	21	150	3.7	330	6,590
	Non-SRI	80	18	123	9.7	244	5,020
Alwan D. Shayal	SRI	85	20	130	5.7	324	8,220
	Non-SRI	75	19	110	11.2	290	5,900
Jaber M. Noor	SRI	90	21	140.7	6.2	318	7,420
	Non-SRI	80	20	121	6.1	310	4,770
Haitham N. Kamil	SRI	85	20	102.5	5	275	6,080
	Non-SRI	80	17	85.5	11.5	297	4,800
Average	SRI	86	20.5	130	5.2	312	7,077
	Non-SRI	79	18.5	110	9.6	285	5,122

Table 4: Results of SRI farmer's fields and non-SRI in Najmi district

Farmer name	Culture method	Plant height (cm)	Panicle length (cm)	Spikelets per panicle	Sterility (%)	Panicle number/ m^2	Yield (t/ha)
Raheem A. Sheltagh	SRI	85	21	122.4	7	355	7,050
	Non-SRI	75	19	100.2	15	308	4,050
Azawi N. Abed	SRI	90	24	140.4	13.9	303	6,450
	Non-SRI	85	21	111.2	18	275	4,300
Najeh F. Karim	SRI	95	24	143.1	7.3	267	7,000
	Non-SRI	90	20	102.4	3.7	404	6,090
Hussein S. Hmadi	SRI	95	23	162.5	13.6	404	6,270
	Non-SRI	85	23	160.7	12.3	284	5,290
Average	SRI	91	23	142.1	10.5	332	6,692
	Non-SRI	84	21	118.6	12	318	4,932

table 5

Province	Farmer name	Area	Productivity (kg/ha)		Increase (%)
			Mech. TP	Conv.	
Diwaniya	Abbas Abed Al-Zahraa	1/2 ha	6,400	5,600	13
	Dhurgham R. Swadi	1/2 ha	7,200	5,600	23
Najaf	Jabbar H. Almhanna	1/2 ha	7,100	5,200	27
	Adnan A. Zebil	1/2 ha	7,000	5,200	26
	Abed Kareem Alzahairi	1/2 ha	6,900	5,200	25
Total	5	2.5 ha	6,920	5,360	28.5

average compared with non-SRI plants because of the use of organic matter and intermittent irrigation on the SRI fields.

In the Rumatha district, Farmer Abdul Ameer A. Mhawis had the highest yield among the SRI demonstration fields in that area, reaching a production of 8,800 kg/ha (2,200 kg/*donum*),* an increase of 130% compared with his non-SRI yield using the same Jasmine variety. His field had the highest fertility because of sowing clover crop instead of wheat (Table 1).

In Warkaa district, Farmer Ghmos K. Kumani achieved the highest yield, 8,165 kg/ha (2,153kg/*donum*), an increase of 70% compared with his non-SRI yield with the same Jasmine variety (Table 2).

Farmer Alwan D. Shayal in Majd district had the highest yield among the other SRI demonstration fields in that district, reaching 8,220 kg/ha (2,055 kg/*donum*), an increase of 41% compared with non-SRI production of the same Jasmine variety (Table 3).

Farmer Raheem A. Sheltagh in Najmi district had the highest yield reaching 7,050 kg/ha (1,762 kg/*donum*) with an increase rate of 36% compared with non-SRI practice using the same Jasmine variety (Table 4).

B. Mechanical transplanting with wide spacing

The State Board of Agricultural Extension and Cooperation undertook to spread the use of transplanting rice by machine adapting SRI practices to such cultivation in cooperation with the State Board of Agricultural Research. Because of water shortage in rice season 2008, only 5 sites in two provinces (Najaf and Diwaniya) were managed, with each site comprising of 1/2 ha. The Agricultural Extension and Training Center in Najaf province held a field day in Al-Abbassiya sub-district. Yield was increased from 13% at lowest to 27% at highest (see table 5).

C. Clover crop as green manure

Iraq soil is in need of restored fertility, whether by applying organic matter or by planting legumes as a green manure. For farmers, planting clover as a crop is common practice for feeding their animals. They then sow their rice crop, but don't seem to know how to produce organic matter from this crop for the soil. Through SRI project, they were taught how to produce organic matter from their farm residues or from their clover crop as a green manure. 40 sites in Najaf and Al-Muthanna provinces were chosen for demonstrations and evaluations.

In April, the clover crop was ploughed into the soil before its flowering phase, then the field was supplied with water and 20 kg/ha of Urea to promote decomposition, and every 10 days, the field was supplied with water again. In June, the field was ploughed again to prepare the land for rice sowing, followed by intermittent irrigation during the crop's vegetative phase. The increase of rice productivity using clover as a green manure compared with traditional methods is shown in the table 6.

We learnt about SRI in 2004 and joined the SRI community of practice in 2005. In the years 2005, 2006 and 2007 we undertook SRI evaluations without any outside support, just with research station resources. In 2008, we started getting support from CHF and IOM to apply SRI methods in Al-Muthanna province.

SRI work in Iraq was done amidst difficult conditions, not like in other countries. Many times we faced dangerous days due to violent actions. Often due to the ongoing conflict, the main roads for travel were closed, but we resolved to continue.

table 6

Increase of productivity with clover crop green manure				Total
Less than 10%	10 – 19%	20 – 29%	30 – 39%	
	25	11	2	40 farmers

Khidhir Abbas Hameed and Flayeh Abed Jaber are from Al-Mishkhab Rice Research Station, Najaf, Iraq

Here's more reading links to press coverage

http://news.chennaionline.com/newsitem.aspx?NEWSID=dd10a37d-826b-457c-a321-a78947377f4a&CATEGORYNAME=CHN

http://epaper.timesofindia.com/Repository/getFiles.asp?Style=OliveXLib:LowLevelEntityToPrint_TOI&Type=text/html&Locale=english-skin-custom&Path=TOICH/2008/12/02&ID=Ar00700

http://www.thehindubusinessline.com/2008/12/03/stories/2008120352121900.htm

http://coimbatorelive.blogspot.com/2008/12/48-year-old-woman-farmer-stole-sri-show.html

http://www.thehindu.com/2008/12/02/stories/2008120254460500.htm

http://www.hindu.com/thehindu/holnus/015200812041201.htm

http://sri-learning-alliance.blogspot.com/

http://www.coimbatorelive.blogspot.com/2008/12/national-symposium-on-sri.html

Dec 2, 2008

National Symposium on SRI

Norman Uphoff (second left), Professor of Government and International Agriculture, Cornell University, the U.S., releasing the SRI Newsletter at the National Symposium on System of Rice Intensification in Coimbatore on Monday. The System of Rice Intensification (SRI) is not a technology. It is a science, a paradigm, a movement, which is spreading throughout the country, Norman Uphoff, Cornell University, the United States, said here on Monday. He was inaugurating a national symposium on "System of Rice Intensification in India – Policies, Institutions and Strategies for Scaling Up" at the Tamil Nadu Agricultural University.

The three-day symposium was being jointly organised by the university and World Wide Fund for Nature (WWF) through WWF-ICRISAT (International Crop Research Institute for Semi-Arid Tropics) Project, Hyderabad. Concurring with the fact that initial scepticism was an expected reaction when it came to accepting SRI, he assured that once the scepticism was overcome, it could be recognised as the best option. Speaking on the sidelines to reporters, Mr. Uphoff and other officials involved in SRI said that the system was being extended to other crops like wheat (System of Wheat Intensification), ragi, sugarcane, mustard and red gram.

Though 220 districts were under SRI cover, the area under cultivation could not be quantified. However, in Tamil Nadu SRI was quantified to 30 per cent of the total cultivable land. They felt that there was no lobby to push the concept. The team sought to bring 20 per cent of the country's cultivation under the concept by 2015. To bring about this, the formation of a National SRI Mission would be set in motion, they said.

Vice-Chancellor of TNAU C. Ramasamy said SRI method of transplanting preserved the biological potential of the plant. "SRI is included in the National Food Security Mission to improve productivity of rice in the country. Projection of India's rice production target for 2025 is 140 million tonnes. This can be achieved by increasing the production by over 2 million tonnes a year. This should be viewed against the backdrop of diminishing natural resources like land, labour and water," he said. Progressive farmers implementing SRI shared their experiences. They were honoured with citations and cash prizes.

http://www.tribuneindia.com/2008/20081212/dun.htm#4

http://www.financialexpress.com/news/So-shall-you-reap--new-tech-sows-a-seed-for-larger-rice-harvest/394853/

http://www.thehindu.com/2008/12/14/stories/2008121450930300.htm

http://www.newkerala.com/topstory-fullnews-55650.html

System of Rice Intensification (SRI) to provide food security to developing countries: Indian Council for Agricultural Research (ICAR)

Coimbatore, Dec 3 : The new System of Rice Intensification (SRI) in India is an answer to food security in developing countries, as there is global concern for food nutrition and ecological securities under the changing climate pattern, Indian Council for Agricultural Research (ICAR) Deputy Director (Crops) P L Gautham said today.

Delivering his valedictory address at a three-day 'Third National Symposium on SRI in India' at the Tamil Nadu Agricultural University (TNAU) here, Dr Gautham said food security was further threatened by population growth and degradation of natural resource.

He said, ''In SRI, the component-single feedling per hill, square planting, transplanting young seedlings are very important for maximum yield with less inputs and maintaining the soil health.'' Dr Gautham said the SRI was not only meant for getting higher yield, but also for high breed rice and seed productions.

Stating that the ICAR was ready to join hands with any organisation for large scale demonstration, adoption and refinement of SRI technology, he said in India, the results from SRI were encouraging.

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SYSTEM OF RICE INTENSIFICATION

'Invent weed eliminating machine'

R Haldorai| ENS
Coimbatore, December 1

A MANONMANI, 48-year-old high school educated woman farmer from Tirunelveli, stole the show at national symposium on "System of Rice Intensification (SRI) in India" held at Tamil Nadu Agricultural University (TNAU) on Monday.She threw a vital suggestion at the agricultural scientists to invent a weed elimination machine.

An emotional Manonmani told bluntly the scientists and researchers at the symposium that the machine was a must as women engaged in removing weeds in paddy fields often complained of chest ache and they had to bend their back for hours.

The SRI is currently implemented in 220 districts in various states in the country.

Manonmani first implemented the SRI system (low investment and high productivity) on a-half acre plot at Thenpathur village in Tirunelveli district in 2002. Using SRI she produced 17 tonnes of rice per hectare, first in the country, against the normal 10 to 12 tonnes.

Manonmani said: "I received training on SRI from TNAU scientists. Under SRI, paddy is transplanted in rows leaving space between them instead of planting it like bushes as done in traditional method. Less water and less number of workers are required in the new method. I could enhance the yield and earn a net profit of Rs 10,000 per acre. That is why I have extended the technology to seven acres."

Manonmani, mother of six - five sons and one daughter, told *Express:* "Personal effort is the prime capital in the scheme. Though the technology is developed to enhance the productivity by the scientists, the drawback is manual weeding. If the scientist can replace manual weeding with a machine, the women, toiling hard to remove weeds, will be relieved of chest ache. Even the profit will double as the manual weeding is quite expensive."

http://timesofindia.indiatimes.com/articleshow/msid-3871498,prtpage-1.cms

"I am ready to train anybody in SRI, from any part of the world" - Smt. Manonmani

The presentation by a woman farmer in the inaugural session, Smt. Manonmani, was different in style but not message. In helping to open the 3rd National symposium on SRI held at Coimbatore, she recounted her first introduction to SRI. There were 100 people who received training on SRI methods at Killikulam campus of TNAU, but only she was willing to try out the new methods out. "The others were totally frightened." However, she added, "Now all 100 of them are appreciating me. SRI has given a new lease on life for the farming community." After her training, she tried the methods on half an acre; now she uses them on 50 acres (20 ha), she said. "What we must do is change the mindset of the people. That is most important."

"Because of my results, I have confidence now," she said proudly. "I can stand in front of you (over 300 people, most of them university-educated) and tell you about my experience. … I tell other farmers, unless you work hard, you cannot succeed." She said that her SRI yields have been as high as 11 tons/ha, and that she received an award for this. "I am ready to train anybody in SRI, from any part of the world." She concluded by saying: "Every farmer is saying that agricultural work does not pay, that it only results in economic losses. But I don't agree. With SRI, it can become profitable. Also, we must remember that if agriculture dies, everyone dies, all life forms will perish."

Excerpt from Dr. Norman's Draft Report on 3rd National Symposium on SRI.

"Any technology, if it good, will propagate on its own." - Smt. Vijay Laxmi

Woman farmer Vijay Laxmi's determination and zeal is infectious. When interacting with a small group of participants during the 3rd National Symposium, she spoke energetically and emotionally in Tamil on her strong desire to promote SRI among other farmers. "I wanted to get high yields," she said. "After training, I got down in the field, doing everything on my own, from land preparation to raising nursery and training the labour on transplanting. Everybody laughed and commented on seeing single seedlings planted in my field, but when the crop started growing, all were astonished and convinced," she said proudly.

"Water constraint was the main reason for adopting SRI," she added. But once in the field, she added, "I learnt so much about pest and other issues which otherwise I may never have come to know. Many of my farmer colleagues simply take guidance from local pesticide dealers. But because of SRI, we have gained knowledge on other important aspects of rice cultivation."

She expressed great happiness and excitement on meeting people doing SRI from elsewhere in India and other countries: "I use to think SRI is practiced only in Tamil Nadu, but I am surprised to know it is a global phenomenon."

She concluded by saying, "Any technology, if it good, will propagate on its own. And in the case of SRI, I am very confident because it can be done with little water, and there are so many other benefits to it."

Dr. G. Ravi,
Associate Prof. Tamil Nadu Rice Research Institute, Aduthurai

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