

REPORT ON SRI ACTIVITIES FROM VISIT TO TAMIL NADU STATE AND NEW DELHI, INDIA, September 22-24 and 29-30, 2003 - Norman Uphoff, CIIFAD

Dr. T. M. Thiyagarajan, dean of the Agricultural College and Research Institute at Killikulam of the Tamil Nadu Agricultural University (TNAU), hosted a Special International Symposium on "Transitions in Agriculture for Enhancing Water Productivity," 23-25 September. This event organized by the Indian Society for Agricultural Resource Management, of which Thiyagarajan is vice president, was held in collaboration with:

- Tamil Nadu Agricultural University;
- Plant Research International (PRI), Wageningen, Netherlands;
- the International Water Management Institute (IWMI), Colombo, Sri Lanka;
- the Indian Council of Agricultural Research (ICAR), New Delhi; and
- the International Platform for Saving Water in Rice, a program based at the International Rice Research Institute (IRRI) in the Philippines.

Dr. Thiyagarajan, usually known as TMT, has been part of our SRI network since he joined a collaborative project on "water-saving methods for rice production" that was organized in 2000 and is managed by PRI/Wageningen with funding from the Dutch government. In addition to Wageningen and TNAU, the consortium includes Nanjing and Jiangxi Agricultural Universities in China, the Agency for Agricultural Research and Development (AARD) in Indonesia, and the Faculty of Agriculture at the University of Antananarivo in Madagascar. CIIFAD is not a formal member of the consortium, since it receives none of the project funding available for research on water-saving, but having helped formulate the project, it has participated in consortium events.

TMT invited me to give a paper on the System of Rice Intensification (SRI) at the symposium and to be a member of the symposium's international advisory committee along with the director of PRI, the vice-chancellor of TNAU, the directors-general of IWMI, IRRI and ICRISAT, and Dr. M. S. Swaminathan. The symposium, which had international participants from a number of countries, gave me a chance to get up-to-date with TMT and **Dr. Anischan Gani**, coordinator of the SRI network in Indonesia, about their SRI activities and to talk with others potentially interested in this methodology.

Symposium Presentations

Gani's paper like several others presented in the September 24 session on "Transition in water management in rice" did not offer data on or evaluate SRI directly but it gave evidence of the productivity and/or efficiency of reduced-water methods for irrigated rice production. My paper in that session considered how altering plant, soil, water and nutrient management practices can affect rice plants' root growth and soil microbial populations and activity, and how these in turn contribute to the higher yields and factor productivity seen with SRI. (It is available upon request from ntu1@cornell.edu)

TMT's paper on "Effect of weeder use on growth of rice," evaluated SRI methods under the label "Transformed Rice Cultivation," which has a good sound and connotations in Tamil language. His data showed 19% and 27% increases in yield in the wet season, and 6% and 11% increases in the dry season with modified SRI methods compared to 'conventional' practices -- with a 50%

saving in water, and with only 10% as much seed, 3 kg/ha instead of 30 kg/ha. Production costs were reduced as no herbicides were used, though chemical fertilizer is applied, possibly why greater increases in yield were not seen, the fertilizer inhibiting soil microbial activity. TMT presented strong evidence of the benefits from using a conoweeder (rotary-weeder) which aerates the soil while incorporating weeds into the soil instead of removing them from the paddy.

Farmer Presentations

Because several farmers who had experience with SRI were invited to the symposium and were given time for short presentations and interacting with other symposium participants, there was more discussion of SRI than my paper or TMT's alone would have elicited by themselves. Two of the farmers, Selvam and Narayan Reddy, I had become acquainted with through email exchanges, but I had not met them previously. They have been training other farmers in the new methods and have become articulate spokespersons for the new system.

The first farmer who spoke, **Meganathan**, reported on how TNAU through TMT had introduced the SRI system in his village. He said that yields of 6.5-7.0 t/ha were obtained. Farmers were initially very afraid about planting single seedlings, so they planted more than this. But he said they now see that the system is good. **Muthukumar** who spoke next talked about other farming issues than SRI, though later he contributed from his knowledge of this new system.

Selvam took the microphone confidently, saying that he first learned about SRI in 1999 from reading an article in the Dutch ILEIA magazine. He first tried SRI methods on a small plot, just 2x2.5 meters, to check them out, using native cultivars. The growth was excellent. However, the next year he couldn't apply SRI on a wider scale because of his grandfather's death. (We should never forget the vicissitudes of rural life.)

He described and recommended a particular compost that he has been using, made with cow dung, cow's milk, cow's urine, ghee and other organic inputs. He said that tillering has averaged 55 per plant, with 34 fertile tillers. Forty-four farmers in his area picked SRI up the next year, though not all with good results as they had no canal water deliveries in 2001, which spoiled many rice crops. There are now about 600 farmers using SRI in his area, on about 10 acres of paddy land. This rice is totally organic SRI, with average yield about 3 t/ha. Their production costs are low, and they get a good market price.

At an organic farming congress in Tamil Nadu, 20,000 handouts on SRI were distributed, encouraging farmer-members to adopt SRI methods. SRI requires so little water that nurseries can be established on raised beds with sprinkler irrigation when canal irrigation is lacking. His own seedlings were 4 days old as he spoke, he said, and he will plant them out at 8-13 days.

Selvam got more venturesome at this point. "This was an international symposium with a galaxy of experts," he said, "and I am only an idiot farmer -- so stop me if I am foolish -- but if we are concerned with water saving, why don't we experiment with mulching, which can capture more dew each morning for the soil? Farmers should have confidence to use their own brains, which have been turned off for the past 50 years. With SRI, farmers are trying to think again, such as mulching their paddy fields. How to tap the full potential of every crop is the challenge that farmers face." In closing, he said that from one tomato plant, nourished organically, he had

produced over 500 pounds of fruits, a yield unattainable with chemical fertilizers. He said that SRI would help farmers in many ways and sat down.

Narayan Reddy, who had come quite a distance from Karnataka State to attend the symposium, spoke last. He said that he had learned about SRI in 2001 from an organic agriculture center in Tamil Nadu, and had studied it and made his own adaptations. He figured that direct seeding, rather than transplanting small seedlings, could save water and labor. He had good success last year with this method, getting 185 quintals/acre, double his usual yield, which was already respectable. He has tried it again this year. They have had only a half inch of rain, but he was able to prepare his land with this moisture, adding farmyard manure and also potash and silicon from rice husk ash. This helps control for blast. He also applied one ton of chicken manure.

For better water control, he divided his field into 7 long strips that could be watered in turn. Using strings, he marked planting intervals of 30x30 cm. He soaked the seeds for a day and then incubated the warmed seeds for 12 hours after 24 hours of soaking. He planted 2 seeds per hill, just 1-1.5 cm deep and then irrigated the field within 8-10 hours. After 5 days, he gave it another irrigation and did this every 5 days up to 25 days. By this time weeds appeared, so he did a manual weeding at 25-30 DAP, and give the field one more irrigation. Thereafter he used the rotary weeder. He has weeded 10 times in opposite directions, to aerate the soil and make healthy roots. By the 80th day, most hills had at least 94 tillers, with 90% of the hills having 2 plants.

During the 35 years when he kept his rice fields submerged, he never had more than 50-60 tillers per hill, from 3-6 plants, and there was only 35% effective tillering, with panicles of 60 grains. Now that he keeps the soil oxygenated, with wide spacing for photosynthesis (these are all the terms he used), panicle initiation is about 65%, and there are 260-270 grains per panicle.

He only had 4 kg of unfilled grains from the 185 quintals harvested. Usually with a smaller harvest, he would have at least 200 kg of unfilled grains. There is almost no senescence of the plants, he said, which was really a surprise. The thickness of the roots is good to see, and their smell is sweet, and no brownness. He estimated the root volume at about a cubic foot, whereas with previous close planting and submergence, root volume was more like 5-6 cubic inches.

Narayan Reddy said that he has been an organic farmer for 23 years. This is the first time there were no pests in his rice crop, "not even one leaf was lost. All the leaves are healthy." Formerly, with close planting, about 15% of leaves were lost to rats. But they seem to be put off by the wider spacing with SRI, so there were no losses. (W. H. Premaratna, a SRI farmer-promoted in Sri Lanka, has also observed that rats stay out of his SRI plots, apparently because they feel more exposed there given the wider spacing; birds, on the other hand, he sees coming more frequently and scavenging for insects.)

Narayan Reddy said that people do not all have the same problems, so they can't use the same blueprint. Many farmers have bad habits. If they are serious, God will help design better systems. There needs to be some alternative to the current reliance on canal water, as it is getting scarcer and more unreliable. With SRI, farmers can get at least 10-20% more yield with less water.

He said more attention should be paid to soil organic matter, to incorporate all possible biomass into the soil and avoid burning, so that each piece of land becomes more water-absorbent, able to function like a well or a dam. He has been disturbed by scientific reports that promote more and more use of chemical fertilizers. All the nutrients needed can be made available from organic sources. Fertilizers devastate soil microbial populations. It is possible to get 20 tons per hectare just with using organic inputs, so fertilizer is not needed.

Narayan Reddy said that it is unscientific to recommend the use of chemical fertilizers together with organic manures because we know that the first can diminish the second. He concluded with the observation that it takes 7 kg of grain to produce 1 kg of meat, and that it will be difficult to meet all people's needs fully unless we adopt a more vegetarian diet. "We should be willing to sacrifice luxuries to reduce poverty." I thought that such an 'ideological' closing would be poorly received by such a scientific audience, but he got the loudest applause of the four farmer speakers.

The first questioner asked whether mulching is cost-effective, accepting that it is beneficial to the soil but might not be paying for the farmer. Narayan Reddy responded that mulching more than compensates for its cost by giving greater yield. He also said that it is 'labor-saving,' which evoked a challenge from the audience, saying that most mulching methods we know about are labor-intensive. Narayan Reddy said that you can save about 20% of your labor this way. "It may look laborious, but with good organization it saves labor. You only need more labor for the larger harvest." Muthukumaran agreed that mulching is cost-effective, saying saves soil moisture and reduces weeds.

Someone in the audience said that shallow planting of seedlings is difficult in the heavy soils of the Cauvery delta, though he added that it had been said you couldn't get farmers to mulch sugar cane, and now this practice is starting to spread. Selvam, who is from the Cauvery delta, said that there are no ready-made solutions for each and every practice. "We should give ideas to farmers and let them innovate, solving their own problems. We need to find out methodologies suitable for our own situations. There are no blanket solutions for the whole country." Muthukumaran, also from the Cauvery delta, said that he had finished his SRI transplanting just before coming to the symposium, and it had required the work of only 6 laborers. So even this SRI transplanting is not so difficult as has been said.

The panel's time was running out. Someone whom I didn't know spoke from the floor in Tamil, with "this is beneficial" coming through in English. I learned later he is the TNAU director of research, who gradually shifted into English. "Definitely it is going to spread, and farmers are going to adopt." He said, with SRI there is a lot of reduction in seed requirement, and weeding costs are reduced. Actually, it will require less labor, he said, reducing costs per acre by 800-1,000 rupees. "You can quickly cover one acre and get out of the field." He also said there is good acceptance among women laborers. (Sri Lankan women transplanters have told me that they find SRI methods easier and reduce backache.)

Another Presentation on SRI

After lunch, **Burhan Choudhury**, who is doing his PhD at the Water Technology Centre of the Indian Agricultural Research Institute in New Delhi, reported on his research, on the effects of

different establishment techniques, including SRI, on crop-water relationships in rice and on the yield of wheat in rotational rice-wheat cropping systems. He evaluated six management systems over two years, with 4 replications, measuring water balance components, plant growth, water productivity, nutrient dynamics, and residual effects of the rice crop on wheat. SRI trials were done with 9-day seedlings planted at 25x25 cm, compared with conventional practice, 30-day seedlings at 15x15 cm; wet seeding; dry seeding; flat-bed cultivation; and raised-bed cultivation.

His powerpoint slides were data-dense and it was hard to absorb all of the relationships that they indicated. Conclusions that I got from the talk were that water productivity was definitely highest with SRI, and also yield (though the latter not by a large margin, for reasons not clear to me given experience elsewhere; possibly this is another case where on-station soil conditions inhibit soil microbiological dynamics compared to what is possible on farmers' fields). Plant biomass was also highest with SRI. Tillers/hill were lowest with SRI, because there were fewer plants, but SRI spikelet fertility was highest (85%). Of special interest for the comparative evaluation, the soil-water conditions for the following wheat crop were best with SRI.

I had spoken with Choudhury about his research during lunch before the presentation, and he expressed great excitement about what he was learning about SRI, and he said he wanted to continue working on it if at all possible. His thesis advisor, A. K. Singh, director of the Water Technology Centre, who has taken a strong interest in SRI, invited me to give a presentation on SRI to his Centre's staff when I got to New Delhi the next week. This I did on September 30, after several days in Andhra Pradesh assessing SRI progress there (covered in a separate report).

Farmer Views on SRI

Before their presentations, I spoke with Selvam and Narayan Reddy and another "SRI activist" about their experience. **Narayan Reddy** told me that he has been an organic farmer for 23 years, working with lots of innovations. He was even visited by Mr. Fukuoka, the Japanese proponent of the "one straw revolution," which has some similarities with SRI. He said that already in just one year, he has gotten more satisfaction from working with SRI than from anything else he has done in the past 23 years. He is obviously enthused about what he is seeing and doing. I was pleased to learn that he is a family friend of Dr. Ramaswamy Dwarakinath, former Director of Agriculture for Karnataka State, and former Vice-Chancellor of Bangalore Agricultural University. There was in the SRI report that Narayan Reddy sent to me at Cornell a picture of Dwarakinath looking at his SRI plot. Since Dwarakinath is a Cornell alumnus and former student of mine, I had been hoping for several years that we could engage him, a respected leader in the agricultural sector of Karnataka State, in SRI evaluation and dissemination as he is involved with many NGOs in that state. Narayan Reddy's innovations with direct seeding methods, reported in his presentation to the symposium, will also be something to monitor and learn from.

Selvam is an organic agriculture activist in Tamil Nadu. He expressed satisfaction that "SRI encourages farmers to think, whereas the Green Revolution treated them like children." He has tried sowing, not transplanting, young seedlings by 'throwing' them onto the muddied paddy field, not planting them in the precise way that SRI recommends. Even his children help him do this. This means that the plants' rooting is very shallow. Quite possibly it is beneficial for the young seedling's meristematic tissue, from which tillers grow upward and roots downward, to be very close to the surface rather than buried in even a little soil, losing access to air and sunlight.

Selvam says that one farmer in his Thanjavur area now has 10 acres under SRI, up from 1 acre last year. He thinks there will be thousands in his area using SRI next year.

Gopal, another farmer from Thanjavur in Tamil Nadu, also described an interesting innovation. He concluded that the intense sunlight on the Cauvery delta would be difficult for very young seedlings to withstand. So he follows as 'two-step' transplanting system.

- At 14 days, he transplants 4-5 young plants from his SRI nursery into clumps spaced 30x30 cm.
- Then at 30 days, he carefully uproots these and retransplants them individually at 30x30 cm spacing. With an extra 2 weeks together, more protected in a cluster from evapotranspiration and wind desiccation, they seem to do better.

Gopal thinks that his plants perform enough better under the climatic conditions of the delta with this second transplanting that the additional labor cost is justified. This needs to be evaluated in economic terms. It could become another variation on the 'menu' of SRI practices. As Selvam stressed, there should be no 'blueprint' for SRI.

It was gratifying to meet these SRI farmers and to learn more about their efforts to adapt SRI concepts and practices to local conditions. Also it was good to hear them articulate not just the principles of SRI practice but also the philosophy of farmer experimentation. These persons have not been part of our SRI network, but members of the network who read their words and think about their innovations will see that they have already been, in spirit, part of this collegium of thinking practitioners and practical thinkers who are the growing community of SRI proponents.

Meeting with Farmers in the Field

On Monday afternoon, September 22 before the symposium began, TMT organized a field visit to meet with a group of farmers interested in SRI, but not necessarily practicing it yet, at a TNAU rice research center about an hour's drive from Thirunelveli where we were staying. Representatives from PRI and IRRI as well as the Chinese and Indonesian participants joined the field trip. For my preferences, there was too much segregation between visitors and farmers, in a long-standing Asian tradition of separating the more educated from the less educated.

However, TMT and I had a chance to explain more about SRI to about 60 farmers. Many had wanted to try it this season, but the failure of the monsoon rains has spoiled most rice crops in the area. The discussion did lead to a distinction in our thinking that may be useful in our efforts to spread and refine SRI use. After farmers had asked TMT, me and others for a number of specific pieces of advice on just how wide to transplant seedlings, or how often to add water to fields, or how deep to maintain field water levels, I asked everyone whether there was a distinction made in the Tamil language between 'instructions' and 'ideas'? All agreed that there is.

I suggested that for SRI, farmers should seek not *instructions* from us, but rather *ideas*, which they can think about and adapt to their own conditions, doing tests, experiments and evaluations to satisfy themselves as to what is best for their circumstances. We are glad to share with farmers others' experience and our own thinking, as a stimulant for new practices and new thinking in the farming community. But we expect that farmers once provided with new ideas will work out,

individually or among themselves, the specific practices, not relying just on 'theory' or external advice, but upon the results of their own observations and evaluations.

This seemed to be understood by the farmers and researchers attending the meeting. It is a distinction that we may want to make explicit in situations where farmers' orientation is toward perpetuating a relationship of *dependence* rather than leading to an attitude and practice of *self-reliance*. SRI is about ideas, not instructions.

A Postscript to the Symposium

When getting to New Delhi and checking my email, I found a message from Burhan Choudhury, the PhD student whom I met at Killikulam, reporting on the end of the symposium, which I had had to leave early in order to have several days for field visits in Andhra Pradesh. I had left toward the end of the second day, missing the latter two days. Burhan wrote:

After your departure, on both days [symposium] was dominated by SRI and its impact. To your surprise, many more scientists and progressive farmers came with strong clamour about SRI's potentiality. I think in India, SRI may bring another revolution from the experiences the farmers are telling. I personally was not confident to that level though I also got better yield than with 'aerobic rice.' But now all fuzz has been cleared, thanks to you and the farming community.

I was glad that Burhan added those last words, because I have been telling people, researchers, administrators, farmers, about SRI for half a dozen years now, and my voice and evidence have not been enough to evoke 'clamour.' What is changing the scene and the climate is the voices of knowledgeable and confident farmers based on their own experience. For more on this, see my trip report from the visit to Andhra Pradesh after the Killikulam symposium.

Seminars in New Delhi

Dr. A. K. Singh, director of the **Water Technology Centre**, set up a seminar for his Centre staff on Tuesday, September 30, at 11:30. Singh told me beforehand that he had had much difficulty getting SRI evaluations started even though he is the Centre's director. None of the scientists there wanted anything to do with SRI. He thought that my coming to explain it in more detail than he could would reduce their resistance.

The first season after he learned about SRI from me at an IRRI workshop in the Philippines in April 2002, he had had to satisfy himself with just putting in two demonstration plots, one SRI and one conventional for comparison, not proper scientific research plots. These had showed enough evident difference that he was able to get Dr. Subedar Singh, a senior agronomist, initially quite skeptical, to supervise evaluation research by a PhD student. These trials are showing such good results, though still a month from harvest, that skepticism was already dwindling by the time of my visit.

My presentation indeed got a respectful hearing with some evident interest. Dr. Rena Khanna Chopra, a member of the staff, nodded so often and vigorously in support of my discussions of soil biological processes that I thought she was a microbiologist rather than the physiologist that she is. One staff member insisted that farmers could not or would not transplant seedlings as

young as 10 days old. I responded by reporting on the farm that I visited in Andhra Pradesh four days earlier where the farmer had transplanted one of his plots with 10-day-old seedlings and the other with plants just 5 days old, at his own initiative. When asked whether this was difficult, he said not once he had gotten some experience with handling them. I suggested to Centre staff that we not regard farmers paternalistically but instead let them decide whether something is possible for them to do or not.

After the talk finished about 2 pm, we visited the Centre's SRI trials with Dr. S. Singh and his PhD student, Venkatachalapathi. They had found spacing of 30x30 cm giving better growth and tillering than 20x20 cm or 40x40 cm under the soil, climatic and other conditions of their area. The difference, 6-10 cm in height, was evident from quite some distance.

A. K. told me that these trials were originally planned to include one set of plots with 10-day-old seedlings. But this part of the research design was vetoed by agronomists on the IARI research committee; they allowed the trials to include only 15-day, 20-day and 25-day seedlings, insisting that 10-day-old seedlings were not worth even evaluating. As happens too often in science, orthodoxy won out over curiosity. But, A.K. said, there is now enough acceptance of SRI that next season's trials can and will include 10-day seedlings.

After lunch with A.K., his driver took me to the **Ministry of Water Resources**, where another Indian colleague met at an international seminar, **Dr. Veer Pal**, Senior Joint Commissioner, had arranged a seminar at 3 p.m. There too he had had difficulty getting interest and acceptance for SRI from colleagues. Veer took me to meet the Commissioner for Command Area Development and Water Management, A. S. Dinghra, who welcomed me and introduced ten staff members who had come for the presentation.

One member, Dr. D. K. Paul, an Indian Council for Agricultural Research agronomist with long experience, challenged my presentation at almost every step, raising questions or objections at least every 4-5 minutes, starting with an argument that the SRI yields reported are beyond the 'biological ceiling' that was reported by IRRI. This slowed the presentation, but it kept others' attention because of the tension between us. Happily, by the end of the session, we were basically agreed on practically all points. I could answer all of his critiques with data or accepted knowledge and principles.

Having been myself quite skeptical about SRI for the first three years that I knew about it, I am sympathetic to and understand skepticism. SRI is counterintuitive and contradicts many things presently reported or asserted in the literature. But we have growing evidence, and scientific explanations, to support our understanding of what SRI methods accomplish, and why. As in all my presentations, I closed by stressing that (a) SRI is 'a work in progress,' which is changing and evolving year by year, with inputs from farmers and researchers, and (b) we still have many more questions about SRI than we have answers, Interest and cooperation are invited from researchers and others to try to build a more solid and satisfactory knowledge base under what is observed and known from practice.

The Commissioner said that his Ministry would surely get involved with SRI now that it was better understood, and when I suggested it would be useful to convene in India next year,

officially The International Year of Rice, a national conference on SRI to share and critique what is known from various SRI evaluations in a growing number of states, he was quick to suggest that this could be appropriate for his Ministry. By the end of 2003, there will be probably 10 times more known about SRI under Indian conditions than was known at the end of 2002.

Concluding Thoughts

In many ways, SRI work in India has started more slowly than in many other countries.

- It began with the initiative of Selvam and maybe some other farmers as early as 1999-2000, thanks to the ILEIA article, but these were not even 'drops' in a 'bucket' as large as India.
- The first institutional involvement that I know about came from Tamil Nadu Agricultural University in 2000-2001, thanks to T. M. Thiyagarajan. Still, the spread was slow, though with definitely some movement.
- This past year, Dr. M. S. Swaminathan's research foundation, also in Tamil Nadu, did its own evaluation of SRI which he told me by email gave excellent results. However, there will be no reporting on this until the foundation has another season of data to evaluate.
- PRADAN, a national NGO, currently has SRI trials going on in a number of states, having done its first trials in West Bengal last year. I have been told that these look very good.
- I understand that the well-known Swami Agnivesh has started some SRI trials at his ashram in Haryana. If he sees benefits for farmers in SRI, he is someone who can communicate these widely and effectively in North India.
- The only negative results thus far have come from three seasons of trials at Annapurna Farm at Auroville near Pondicherry. For some reason, 'the SRI effect' has not showed up on its alkaline, dark cotton soils. This offers an intellectual challenge to ascertain the reason for the divergent results there.
- The most rapid and promising dissemination is in Andhra Pradesh, where under the leadership Dr. A. Satyanarayana, ANGRAU director of research, farmer involvement with extension and research staff is accelerating the spread of SRI knowledge and practice.

Probably there are other experiments and evaluations going on in other parts of the country that are not known to me, or maybe anyone else. It will take some use of the media to make contact with such persons or groups.

In a number of other countries, national SRI networks have been established; I am in touch with networks in Bangladesh, China, Indonesia, Laos, Nepal, and Philippines. I hope that Indian colleagues can follow suit with some networking arrangement of their own, building connections among researchers, NGOs, farmers and administrators, so that each can help the others be more effective in their efforts to exploit the opportunities that SRI is opening up.

Just before I left New Delhi, I called **Dr. A. K. Srivastava** in the Ministry of Agriculture and Cooperatives, who had helped arrange a seminar on SRI at the Ministry during my previous visit. He had been tied up the past two days with the government's semi-annual crop season review where top officials in the Ministry and representatives of all the states had met to plan for the coming rabi (winter) season. He commented, with some satisfaction, that representatives of both Andhra Pradesh and Tamil Nadu state governments had reported that they are introducing SRI and have seen good results so far. So SRI is starting to get some national attention. If the kharif (summer) season results in AP and TN are as good as we now expect them to be, this should give much impetus to SRI's utilization in India now that it is becoming known at many levels.