

REPORT ON SRI EFFORTS IN CHINA

Norman Uphoff, September, 2002

1. Prior to the International Rice Congress held in Beijing, September 16-19, I was able to visit several Chinese institutions that had, after the Sanya conference in April, suggested I come to see their SRI trials and to discuss with their staff what we are learning about the SRI methodology.

2. **China National Rice Research Institute (CNRRI)**: On September 9-10, I visited CNRRI at Hangzhou, south of Shanghai. A number of its researchers have been doing evaluations of SRI (multi-authored papers by Zhu Defeng et al. and Tao Longxing et al. were included in our Sanya proceedings). Zhu and Tao had arranged for me to give a seminar on SRI the afternoon of the 10th as part of a CNRRI annual training program for rice scientists from around China. Earlier that day, the training program participants and I visited CNRRI's headquarters about an hour's drive outside of Hangzhou. The SRI plots were reaching maturity, but it was too early to know their yield yet. The CNRRI director-general, Cheng Shihua, as well as Zhu and Tao expressed satisfaction with their SRI plots, expecting these to give more than satisfactory yields.

3. The Institute had drafted a memorandum of agreement (MOA) to be signed between CNRRI and CIIFAD. It wants to establish a network of researchers and institutions working on SRI around China to facilitate sharing of information. It would like this network to be linked, through CIIFAD, to the SRI networks already established (Bangladesh, Indonesia, Philippines) and those yet to be established (Cambodia, Cuba, India, etc.) CNRRI is thinking about organizing a national conference on SRI in China for next year. The results of its research so far have satisfied institute leadership that SRI offers some promising directions for research and evaluation.

4. **China National Hybrid Rice Research and Development Center (CNHRRDC)**: I spent September 11 at CNHRRDC's headquarters in Changsha. I gave Prof. L. P. Yuan, the director and our host for the Sanya conference, the conference proceedings that he had helped edit, providing him with both a printed version and one on CD-ROM. We visited the SRI plots in the fields near the headquarters, together with Dr. Virmani from IRRI, who arrived at the same time I did and has worked with Prof. Yuan on hybrid rice for almost 20 years. The SRI plants were about as far along as those in Hangzhou, so we could not know yet their yield. Yuan and his staff are pleased with the progress of their SRI trials and expect very good results.

5. After lunch, Dr. Peng Jiming took me to the fields of a farmer about half an hour's drive from the center who is using SRI methods this season. He is very satisfied with the crop's growth so far, and he said that the extra work required with SRI seems worthwhile given the greater production he anticipates. At dinner that evening, Dr. Peng and Dr. Ma Guohui expressed the center's interest in continuing and expanding its work on SRI, and their willingness to support wider dissemination of SRI knowledge. They will soon have three seasons of results to analyze and report, and they will write these up for publication. We hope to have a paper from the center to include in our web-version of the Sanya proceedings by the end of this year.

5. **Sichuan Academy of Agricultural Sciences (SAAS)**: Dr. Zheng Ziaguo, director of the Tillage and Cultivation Department of the Crop Research Institute of the SAAS, initiated email communication with me after his first year's SRI trials gave 13 t/ha yield. He met me at the

airport with one of his colleagues when I arrived on the 12th. After a splendid lunch, we drove to Meishan, 75 minutes south of Chengdu, to the Science and Technology Research Office of the Sichuan Science and Agriculture Ltd. Co. We were met and shown around the farm by its manager, Mr. Liu Zhibing, who had devised the "triangular" method of transplanting for SRI that augments yield by increasing tiller population by about 50%.

6. In his paper for the Sanya conference, Prof. Yuan reported on Liu's innovation and his yield attainment of 16 t/ha with SRI methods using "triangular" planting and super-hybrid rice varieties. Most of the crop had been harvested already, except for 2 mou (about 1/8 ha) that had been saved to show Prof. Yuan if he visited. (Prof. Yuan helped establish this farm and advises it on improving technology.) Unfortunately, this rice became overmature, and when very strong winds (the edge of a typhoon) hit Meishan a few days previously, much (though not all) of the unharvested rice plots lodged. The panicles were abundant and huge, another yield of around 16 t/ha if harvested properly.

7. Liu is very enthusiastic about SRI methods and showed us how wide and deep are the roots of his plants when they have wide spacing and unsaturated soil. He alternates rice and rapeseed rather than planting only rice. (Rice gives about 70% of the income in this farming system; the rotation probably contributes to higher rice yield than in a monocrop system.) He is trying out an interesting rotation with potatoes inserted. This intensifies production but seems to improve, rather than deplete, the soil. Pictures from the Meishan visit (as well as other parts of this trip) can be provided on request in jpg format.

8. On the morning of the 13th, I gave a seminar in Chengdu on SRI to staff of the Crop Research Institute and some students from the agricultural university who work on rice. Then after lunch, I was taken on some "agricultural tourism" to the place, a little more than an hour's drive from Chengdu, where large-scale irrigation began in China over 2,200 years ago. It is a UNESCO World Heritage site and surely deserves this honor. Though we had light drizzle most of the afternoon, it was a spectacular and very informative visit.

9. Then on the 14th, Zheng and I drove about three hours to get to Luzhou, on the southern edge of Sichuan province. The climate around Luzhou is warmer than farther north around Chengdu, and farmers in Luzhou have been ratooning rice for some time. SAAS' Rice Research Institute is located in Luzhou, and its director, Dr. Xiong Hong, has begun evaluations of ratooning with SRI methods on farmers' fields. Given the larger root system that SRI methods create, this should give better ratoon production. Again, there were no yield figures available, but Xiong estimates from the standing crop that at least 1-2 t/ha more yield should result with SRI methods than from conventional ones. Still higher levels should be attainable once the methods are better understood and used, in my view, and when soil quality has been built up through these methods.

10. After visiting a number of farmers' fields, we had a nice lunch with a number of local officials, and with expectedly hot (spiced) food. The officials expressed their satisfaction with SRI results and said that they will start expanding SRI use in the next season. After good first-year results from SAAS trials last year, this season there are SRI demonstration trials in six locations throughout the province: Meishan, Luzhou, Fusun, Suining, Wenjiang, and Guanhan. Zheng thinks that if the yields are as good as now expected, there should be rapid acceptance and

use of SRI methods in Sichuan, which has about 70 million population. On Sunday the 15th, we flew together to Beijing for the rice congress.

11. **International Rice Congress:** The event was opened with a speech by China's President Zheng Zimin, not just welcoming delegates but going into issues of rice, agricultural and national economic development in more detailed than most heads of state could do. I missed most of the presentation by my friend, F. H. Abed, executive director of the Bangladesh Rural Advancement Committee (BRAC) and a member of the IRRI board of directors, because Dr. Lu Shihua, director of the Soil and Fertilizer Institute of the Sichuan Academy of Agricultural Sciences (who had not been able to see me while I was in Chengdu) came over to show me a very impressive powerpoint presentation on his SRI research and evaluations this past year. He was accompanied by Liu Zhibing whom I had met on Thursday as his farm research station in Meishan. (Lu also had a poster presentation on his SRI research findings in the main conference hall.) I wish that his data could have been included in the proceedings of the Sanya conference, which he attended, as they support the points we make about age of seedling, spacing, etc. very clearly.

12. After the opening plenary, Dr. Cheng and Dr. Zhu from CNRRI brought me a final draft of the MOA for cooperation on SRI between their institute and CIIFAD. We signed it on the podium with photographers taking pictures. I did this on behalf not just of CIIFAD but of the many partners in different countries who are working on SRI and who can contribute SRI knowledge to Chinese colleagues as well as benefit from SRI knowledge that these new colleagues can provide. Dr. Ma and Dr. Peng, as well as Prof. Yuan, whom I saw at the congress, indicated that the CNHRRDC is also interested in an active role in any China SRI network.

13. There were at least 17 Sanya participants at the rice congress: Prof. Yuan, Ma and Peng from CNHRRDC, Cheng, Zhu and Tao from CNRRI, Zheng, Tang and Liu from Sichuan, Cao Weixing from Nanjing Agricultural University, and probably still others from **China**; Karl Goeppert and Douangvila Kouang from **Laos**; Phrek from **Thailand**; Raj Gupta from the Rice-Wheat Consortium in **India**; Muazzam Husain from BRAC in **Bangladesh**; and Peng Shaobing from **IRRI**. There were also a number of persons who knew about SRI and are working with it: Dr. Zhou Guangchun, director of the Rice Research Institute, Jilin City Academy of Agricultural Sciences in the north of China; Dr. Fan Xiao Lin, director of the Fertilizer Research Lab of South China Agricultural University in the south; Dr. S. Ramanathan, director of the Tamil Nadu Rice Research Institute (Aduthurai), associated with Tamil Nadu Agricultural University; Dr. A. Padmaraja, director of research at A.N.G. Rau Agricultural University in Hyderabad, India; and Dr. Aldas Janaiah at the Indira Gandhi Institute of Development Research in New Delhi.

14. I learned that IRRI's SRI test plots at its Los Baños headquarters in the **Philippines** did not produce very good results this past season. I was not given any figures, but I understand that there was no "SRI effect." This is disappointing but not surprising since we have seen a number of times that SRI methods do not give as good results on experiment stations as those attainable on farmers' fields. In the past, this has been understood to mean that the farmers' SRI results were not real or valid and that SRI therefore need not be taken seriously. By now there are enough results from so many different countries, about 90% of them supporting the SRI "hypothesis," that the methodology cannot be simply dismissed. This reversal of the usual situation -- where

farmers cannot replicate on their fields the results reported from experiment station trials -- presents an interesting puzzle for systematic scientific research.

15. During one of the sessions, I was able to sit next to Dr. Bungaran Saragih, Minister of Agriculture for **Indonesia**, who has known about SRI since 1998 when I told him about it while he was still director of the Center for Development Studies at the agricultural university in Bogor (IPB). He had hoped to attend the Sanya conference, but other duties precluded this. He confirmed that Indonesia is incorporating SRI methods into its new "integrated crop and resource management" (ICM) strategy to raise rice production after a period of yield stagnation. Dr. Achmed Fagi, former director of the Indonesian Rice Research Institute at Sukamandi and now secretary for AARD, who organized the first seminar on SRI outside of Madagascar (in October 1997) after I showed him some of our data from Ranomafana, confirmed the government's interest in and commitment to SRI methods, saying that they have had very good results from eight provinces this past year and expect the methods to become used more widely.

16. On Thursday, September 19, I was able to make a noon luncheon presentation on SRI. This seemed to go over well. About 160 copies of our Sanya conference proceedings were quickly taken (40 of them while the proceedings were still stacked up outside the hall where the presentation was going to be made). The questions asked were good and serious ones. A large number of IRRI staff were there for the presentation, and there was a genuine interest shown. After the talk, Zhou and Fan came up to tell me of their work with SRI that I did not know about before (see 13 above).

17. The best new contact for SRI made was with Tam Pak Siew from **Malaysia**, who manages a large organic farm (200 acres) called Bright Terrain, about an hour's drive from Singapore. He is very interested in working with SRI as this fits into his philosophy of agriculture. He would like to figure out how to use it within his large commercial operations. He will share whatever he learns about SRI with other organic farmers in that country, where we have not previously had any uptake. Tam has the kind of energy and entrepreneurial spirit, as well as an agroecological approach to agriculture, that could help make the system gain acceptance in his country.

18. A highlight for me was an hour spent talking with Sylvie Coyaud, a radio journalist who has a regular program on environmental affairs on national public radio in **Italy**. I understand that her program has a fairly large and faithful listenership. She learned about SRI from the January 2001 conference in London on sustainable agriculture where Sebastien Rafaralahy, president of Tefy Saina, made a presentation. She has since interviewed me twice by telephone, and she has distributed information on SRI to interested listeners. One of them has a brother in **Brazil** who is serving rural people as a Jesuit priest, much as Fr. de Laulanié worked. I am pleased to note that Erick Fernandes (Cornell) gave a plenary presentation on SRI to a big agroecology congress in Brazil at the end of September. It had over 3,000 participants including several hundred farmers, so maybe SRI will start moving in that country too.

19. At the opening dinner and cultural event on Monday the 16th, I happened to meet Dr. Samrat and another senior agricultural scientist from the **Indian** Council for Agricultural Research. We have been trying to get ICAR interested in SRI for some time. As it happened, Dr. P. K. Sharma, a director in the water resources secretariat in New Delhi, was with them. He had learned about

SRI from me at a workshop on irrigation management held in Colombo last June where I was serving as a resource person (and, of course, talked about SRI). When he got back to New Delhi, he started his own plot of SRI rice, even though the season had already started. Enthusiastically he told us about his plot: how large and healthy the plants are, how neighboring farmers have been coming and asking him: what is new variety that have you planted? (He explains that he has just changed his management techniques.) He did not know what the yield from the plot would be, but he is fully persuaded of SRI merits, so I didn't have to say much about SRI to his friends from ICAR.

20. On Tuesday evening the 17th, I was invited to China Agriculture University by Dr. Pu and Dr. Xie to give a talk on SRI to one of their agronomy classes. There were about 50 students and a lot of interest. Pu and Xie tried SRI methods for the first time last year, on the CAU farm which is, unfortunately, more than an hour's drive from the campus. They could not supervise the work there, and the seedlings had to be grown on campus and driven there for transplanting, making for a much longer lag time between uprooting and transplanting than is recommended. So their results were not impressive. However, the farmer who managed the SRI field on the CAU farm was impressed with the plants' growth and vigor when I visited the farm with Pu and Xie in August 2001. They are persuaded of the merits and logic of the system, even if they have not gotten good results from it themselves so far. More could be reported from the week in Beijing, but these are enough highlights.