

REPORT OF MEETING OF NEPAL SRI NETWORK PARTICIPANTS, KATHMANDU, 4/4/03 [from notes of Khem Raj Dahal, IAAS, Chitwan]

The meeting, convened at ICIMOD, got started with a brief introduction of all the participants. Chris Evans, ATA, discussed the agenda for the meeting, followed by reports/opinions presented from the individual participants at the Network meeting.

Shyam Shrestha, Suryodaya Farm/Sitapaila, one of the pioneers of SRI practice in Nepal, shared his experience on how SRI can be made successful. He reported that two crops of mustard can be grown on an SRI field without adverse effects on the rice crop. The mustard smoothers the weeds and can be used for green manuring. He is interested to continue SRI.

Srikanta Adhakari, CARE/Nepal, reported on his experience with SRI and said that he had done SRI in Chaite season, using 30x30 cm spacing and two weedings. This was not that successful because there were pest problems, mainly gundibug, due to unsynchronized maturity. He emphasized the need for synchronized maturing varieties, or the value of SRI in Chaite season will be put in question. In response to this, Mr. K.P. Bhurer from RARS/Parbanipur suggested that SRI should be better in the Chaite season since it is difficult to manage water in the main rice season.

Rajendra Upreti, DADO/Morang expressed his positive attitude toward SRI and is planning to try this technique among the farmers in Morang this year.

P. B. Shah, PARDYP/ICIMOD, said that his colleague, Bandana Prajapati would share ICIMOD's experience with SRI. He proposed said that any technology developed should have wide adaptability and be usable by the small-scale farmers in the hills.

Chris Evans, Appropriate Technology Asia, shared his experience on SRI done in marginal land with red soil in Lekforsa, Surkhet (1000 m elevation). The crop did well, showing the potentiality of this technique in marginal lands.

Khem Raj Dahal, IAAS/Rampur, told his unsuccessful story of using SRI in Chitwan last year. This was due to water-logging, and he pointed out the importance of site selection for making use of the SRI technique.

Chrinjibi Adhikari, Cornell University Soil Management CRSP coordinator, shared his long-term experience with SRI in farmers' fields that started in 1998 in Sipaghat and later in Kathmandu valley. They planted Khumal-4 and Taichung, using three spacings, 30x30, 40x40 and 20x20. Taichung produced 25% higher yield with SRI, and Khumal-4 gave up to 65 tillers. Solarisation technique gave 10 to 15% higher yield. In Tarahara, Mashuli gave up to 75 tillers, and 20 to 25% yield variation was found between usual and SRI planting methods. Even a tall variety like Khumal-4 did not lodge with SRI, showing a positive aspect of the technology. Spacing of 20x20 cm was best of all. Khumal-4 recorded a yield up to 8 ton per hectare. Dwarf varieties have high tillering potentiality should be used with this technology. The number of weedings, soil type, and temperature are critical factors to be considered.

D. B Gharti, RARS/Parwanipur, said that, being impressed by the reports on SRI in other places, his station is going to try the technology from the coming rice season.

Tufail Akhtar, NRRP/Hardinath, expressed his view of going to try SRI with many varieties in collaboration with soil scientists and breeders this year. Chrinjibi suggested that Tufail use fields with high OM for better results from SRI.

B. M Basnet, NARC/Kumaltar, asked participants for a good technology, saying that he would disseminate it throughout his division. He stressed the importance of healthy seedlings, which determine half of the yield. In Japan, for example, seeds are sorted on the basis of specific gravity, and good seeds are selected, and prepared nurseries are sold. He also stressed soil fertility, saying “Grow rice with soil fertility, and wheat with fertilizers.” Integrated management of the whole crop is important. Plastic can be used to promote the growth of seedlings, and use of GA to extend the height of the seedlings may also be used in SRI. Bangladesh has reports of 30 to 40% increase in grain yield by raising rice seedlings in solarized beds

Rita Sharma, CEAPRED, shared the experience on SRI based on an experiment with Masuli variety spaced at 25x25. The experiment was late by 45 days, however. Around 60 tillers were produced, but due to borer and blast, the yield was low. Grains were chaffy. Farmers were interested, however, and asked for the technology. Direct-seeded rice was also grown, but tillering was not good.

Bandana Prajapati, PARDYP/ ICIMOD, reported that ICIMOD had done an experiment to compare SRI and traditional methods of rice cultivation (TM) in terms of production and labor requirements. Single, two-leaf, 12-day-old seedlings of Makanwanpur I variety were planted at a distance of 25x25 cm in SRI plots, while 1-month-old seedlings, 2-3 in a hill, spaced approximately 10x10 cm, were planted in the TM plot. The plots were top-dressed with NPK, ~ 50:30:30 kg/ha. The SRI plot was weeded twice, while only one weeding was done in TM. The SRI plot was just kept wet, not flooded, up to flowering, and a thin layer of water was kept during flowering; whereas the TM plot was flooded throughout the crop-growing season.

The maximum number of tillers was produced on SRI plot. Biomass production in both plots was 13.7t/ha whereas grain yield with SRI was 10 t/ha and with TM, 8.25 t/ha. She reported difficulty in controlling water and faced pest problems like rats, ducks and other site-specific problems. She had sampled only 40 plants and also asked for suggestions about the sampling size. It was suggested that the whole plot be harvested as net plot.

Andreas Jenny, INF/Banke, reported that SRI was used in some farmers' fields in Banke and Bardiya, but he did not know the detailed results. This year he wants to try SRI and asked for suggestions. One suggestion was to go through the IPM farmer groups already formed for Farmer Field Schools (FFS).

Rupert Graville, UMN, said that he came to know about SRI only last year and has an inclination to try it, but does not have courage to start. He wants to start SRI in farmers' fields and asked for suggestions. It was suggested to start with just a small area and work with the farmers with whom he is already working.

B. D Dahal, NEDECO, SMIP, Morang, reported that his organization had included SRI as one of the many components of an integrated crop and water management program in Sunsari-Morang Irrigation Project command area. The project works with and through FFS and conducted SRI experiments with five varieties: Mansuli, Radha 12, Rampur Mansuli, Kanchi Mansuti, and RP-1017 in 12 sites. Being impressed by the literature of N. Uphoff, they had started the work. The FFS approach was very popular in the locality from the start, beginning with IPM. Later ICM (integrated crop management) was also included, and in the last monsoon season, SRI was added to their research program, evaluating it compared with FFS improved practice and farmers' practice.

Farmers were told about the SRI methodology that included raising of nursery in dry beds; planting 10-day-old seedlings, one seedling/hill, in 30x30 cm spacing, with irrigation keeping the soil moist but not flooded; 4 weeding (at 10, 24, 38 and 52 days after transplanting); and with well-aerated soil but maintaining a thin layer of water during the reproductive stage. But farmers did not follow all aspects of the methodology correctly. However, about 90% was followed. Up to 90 tillers were found on SRI plants.

Average yield was highest with SRI methods (8.07 ton/ha), followed by improved practice (5.81t/ha) and farmers' practice (4.38 t/ha). The range of yield in SRI was 5.45 to 11.1 t/ha, with average yield around 39% more than that with improved practice and about 85% higher than that of farmers' practice. More productive tillers (25 vs. 12) and more grains per spike (232 vs. 136) contributed to the increase in yield with SRI methods. He suggested that further research should focus especially on aspects such as varietal differences, fertilizers and micronutrients, chemical weed control, age of seedlings, and cost-return analysis, etc.

R. B Neupane, NWRP/Bhairawa, said that NWRP started SRI in 2001 with Rampur Masuli and Radha-4 varieties with 40x40 m spacing in a unlevelled field; a higher yield was found in depressed patches. A detailed experiment was done with Sabitri variety evaluating many treatment combinations. The main blocs were with (a) 10/12-day-old single seedlings, with spacing 40x40, 30x30 and 20x20 cm; and (b) 20-day-old seedlings, 2-3 per hill, with 20x20 cm spacing. Subplots had variations in weed control: manual weeding, weeding by rotary weeder, herbicide use, and no weeding. These trials were conducted on research station and on farmers' field in 2002.

Results of the research were: SRI spaced 30x30 cm with manual weeding had highest yield (6,842 kg/ha) in the research station, whereas 20x20 cm spaced crop with manual weeding gave highest yield (8,821 kg/ha) in farmers' field. Single seedlings, 10-12 days old, gave higher yield. Higher weed pressure was observed with wider crop spacing. Puddling the soil and holding of water in the field a month prior to transplanting minimizes weed infestation. Irrigation followed by immediate drying seems deleterious, and water stagnation for 2-3 days is imperative. One weeding followed by weedicide seems to be the best method of weed control. The station in collaboration with various NGOs has plans to continue working further on SRI.

Scott Justice, CIMMYT/Kathmandu, put emphasis on the use of healthy seedlings. Young seedlings have higher chance of root establishment and less chance of damage. Agronomic practices in nursery are very critical. Techniques like mat seedling, Chinese dimple seedlings, seedling broadcasting, parachute seedling have to be introduced. New cultivation techniques, e.g., transplanting; use of machines for weeding or by hand, direct seeding of rice, and bed planting should be made popular. For example, bed planting gives 6- 7 ton/ha. Broadcasting is an old method in rice cultivation in Nepal and India, which should be reintroduced to the farmers with advanced know-how. Soil structure is important, so it is better not to puddle the field. Zero-till beds can be direct-seeded or transplanted. Do not plough the field if you want to conserve the carbon.

After finishing the discussion on SRI, all the participants, in two groups, gave a brief look at a draft publication on SRI in Nepali prepared by Chris Evans. The main objective of this brief review of this small booklet was to ensure that its syntax and any technical aspects were correct. The material was already well-prepared, so the review did not take a long time. Presentations and discussion on boro rice followed this.

Boro Rice

Two speakers presented their work on boro rice. **K. P. Bhurer, RARS/Parwanipur**, talked about boro rice experiments in Parwanipur where different rice varieties were tested for their suitability to boro conditions during the winter season 2001/02. Days-to-maturity ranged from 190 to 210 days. Sugah, a local collection, produced 600 tillers/m² but lodged. The highest number of filled grains was produced by Gautam variety. BRRI Dhan 36 and Gautam were found promising as boro rice during the first year whereas Gautam (6,066 kg/ha), Saroj (5,606 kg/ha), and BRRI Dhan 36 were did well in the second year. Other varieties found to be grown locally in boro are Pravat, Dhanalaxmi, and Riccharia,

R. B Neupane, NWRP/Bhairawa, in presenting his work on boro rice spoke about two fertilizer and varietal experiments in Bhairawa during 2001-02. The crop best responded to the combination of 120:60:40 kg NPK/ha with FYM, producing the highest yield (6,605kg/ha) supported by other YAC. In the same way, Jaya, a late variety, gave the highest grain yield (5,812 kg/ha) followed by Gautam, an early variety (5,646kg/ha). He expressed skepticism about the sustainability of a system of growing three rice crops in a year and commented on possible negative impacts of such a system of soil and water use of the land resources.

At the conclusion of the meeting, all were optimistic about the future of SRI, boro rice, and the Network itself. Scott expressed his view about thinking of a broader name for the Network. He suggested renaming it something like Rice Options Network as there are people in the rice-wheat circle who do not like SRI and it would be better if we name it otherwise. The question of searching for funds by making a group proposal was also raised, but it was decided to go working individually on our own for the time being.

At the end, we thanked Dr. Shah and Mrs. Prajapati (ICIMOD) for providing the venue for the meeting, and they thanked all for participating in the meeting. We departed with the hope to meet again with more work done on SRI. 4/14/03