

Food security in flood prone areas

SRI shows the way

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More number of paddy farmers in flood prone areas in Kailali district are adopting SRI method. With SRI, farmers are able to raise rice plants which have withstood storm, wind and flood, thus making it a climate resilient crop. SRI is therefore perceived as god's gift to those who are under constant threat from floods.

Kailali district is located in the far-western region of Nepal. To the north of the Kailali lie the hills of *Chure*, at the banks of which most of the rice fields of the district are located. From ages, the lives of the local tribal communities, *Tharus*, have been revolving around rice, which is also closely related to their culture and tradition. Farmers also grow wheat, lentil, and mustard on a smaller scale, mostly during the winter season. Land remains barren in summer season.

Kailali district was self sufficient in food production and was the main supplier of staple food for northern hilly districts of mid and

far western development region. However, since 2005, the district has been facing severe food deficiency owing to several reasons - erratic rainfall and long dry periods, heavy flooding in late monsoon, insufficient winter rain and heavy rain fall at times, declining soil fertility due to continuous wind erosion during summer season, unavailability of agro-inputs like improved seed and fertilizers and very poor seed replacement rate.

To enhance food production and mitigate the negative effects of soaring food prices on local rural population, Forum for Awareness and Youth Activity (FAYA) Nepal, in collaboration with FAO, implemented the EU Food Facility Project (FUFP) during 2009-11. The project funded by European Union supported vulnerable households in adopting improved agriculture practices through capacity building and provision of improved inputs.

Building confidence

In May 2010, a training programme was conducted to test the effectiveness of SRI in Kailali under farmers conditions and also to create confidence in SRI techniques among all field staff and

Weeding in SRI plots provides better aeration to rice plants



lead farmers of the project. A training through demonstration was organised at Bhajani VDC (Village Development Council) on an area of 1500 sq.m. Mr. Rajendra Uprety, the senior agriculture officer in the government of Nepal, facilitated the training.

The plot was divided into two - one for conventional paddy and the other for SRI paddy. In conventional paddy, farmers followed their conventional practices in growing rice – flooded field condition, transplanting 25 day old seedlings, sowing 3-4 seedling per hill, spacing of 10-15 cm apart, no weeding etc. In SRI plot, ten day old seedlings were transplanted 25 cm apart. Two weedings were done in 10 days interval using rotary weeders brought from Nepal Agriculture Research Council (NARC). Hardinath-1 variety of rice was grown in both the plots. Both the plots received 10 tons/ha of FYM with no chemical fertilizer application.

Farmers observed that SRI paddy yielded twice that of conventional rice. While the yield potential of Hardinath-1 variety is 5 tons/ha as claimed by NARC, it yielded 5.2 tons/ha. under SRI conditions The yield in conventional method was 3.1 tons/ha. Also, the conventional field was greatly infested by gundhy bug while SRI field was free from pest infestation.

Reaching out through Farmer Field Schools

Looking at the positive results of the field demonstration at Bhajani, EUFFP project team decided to conduct six farmers field schools (FFS) in SRI in 6 different project VDCs during the main growing season of rice. Preceding the FFS, a 20 week- long Training of Trainers programme was organised for 60 agriculture graduates from University and Department of Agriculture, to train them as master trainers. Farmer facilitators were given a short term refreshment and orientation training, developed by National Integrated Pest Management Programme (NIPMP).

Six FFSs were organised in six Village Development Committees (VDCs) in Pahalmanpur, Ramsikharjhala, Pawera, Phulbari, Darakh and Khailad, during the main season of 2010. Prior to actual FFS sessions, three preparatory workshops were organized for each FFS to sensitize farming beneficiaries, decision makers and local leaders on the FFS approach. These workshops were facilitated by farmer facilitators.

For each FFS, 25 farmers from the surrounding villages gathered once a week, to discuss, observe, analyze the rice production

SRI changed Lalkus' fortune

Lalku Kathariya of Lalbojhi VDC in Kailali district, could not sleep due to the threats of flood in the month of September. He has not been able to harvest rice since three years owing to floods. So is the case with other farmers, creating food insecurity in the village. Many young people have migrated to other places in search of wages. Katharia would also have left the place, but for the EUFF project, which helped him tide the situation.

His field was selected to conduct FFS with 24 farmers. In the initial stages, SRI rice fields looked almost empty and it was very frustrating for Katharia. Neighboring farmers started criticizing. His wife too was unhappy for having tried this new technique, even though the project team promised to compensate in case of yield loss.

Fifteen days after transplanting, when the first weeding was carried out, the crop started to tiller. Surprisingly, the tillering increased tremendously and a number of farmers started visiting his field to count the number of tillers. During harvesting stage, when the temperatures were high, only his field was full with long and golden panicles of rice. He harvested more than double the grain and straw than those who followed conventional methods.

Now, Katharia is well known among the people in his region. His success story has spread through various media and people keep visiting his field.

practices in the field. For each FFS, an area of 1800 sq.m was allocated - 200 sq.m for trials, 300 sq.m for conventional practice and remaining 1300 sq.m for SRI practices. Farmers' innovation was fostered in each school by providing space for experimentation.

In all FFSs, SRI plots yielded twice when compared to conventional plots. Farmers observed better crop health, and vigorously grown plants in SRI plots. Young farmers showed interest in using the weeders and women farmers too felt that their drudgery in weeding was reduced by using weeders. SRI plants were also highly tolerant to lodging, producing more straw.

Scaling up

With very enthusiastic results from the six FFSs, it was decided to upscale the programme to address the low food production problem among the resource poor farmers in the flood prone areas.

Table 1: Rice yields across different farmer's field schools

S.No.	Name of field school	Variety	SRI technology		Conventional methods	
			Tillers No per hills	Yield (Mt/ha)	Tillers No	Yield (Mt/ha)
1.	Sunaulo Bihani SRI Farmers' Field School, Pahalmanpur	Sunaulo Sugandha	35	7.5	5	3.5
2.	Shanti SRI Farmers' Field School, Ramsikharjhala	Sunaulo Sugandha	45	7.8	6	4
3.	Shrijanshil SRI Farmers' Field School, Pawera	Radha #4	56	6.9	8	3.3
4.	Janajagrit SRI Farmers' Field School, Phulbari	Jaya	50	8	7	3.7
5.	Pragatishil SRI Farmers' Field School, Darakh	Radha #4	55	7.5	9	4
6.	Krishi bikash SRI Farmers' Field School, Khailad	Sabitri	58	8.2	9	4.5



Members of farmer field school learning on the field

Farmer Field Schools were organized in other villages. About 30 FFSs were organized in 12 VDCs in the early season of 2011. These FFSs were conducted by farmer facilitators who had in 16-week long farmer field schools. They were given refreshment training by the master trainers for a period of 30 days. Also, each group was provided with ten weeders. To encourage and enable the participant farmer to adopt their FFS learning on their own field, each farmer was given 3 kg of rice seed (Chaite-2). A total of 1069 farmers were trained through FFS. In 2011, 580 farmers cultivated rice through SRI techniques on 80 ha of land. This increased to 820 during the rainy season crop, covering 120 hectares.

The method was also tried in wheat crop. System of wheat intensification was tested successfully for the first time in Nepal which resulted in very enthusiastic results. Four demonstrations were organized in three VDCs viz. Ramshikharjhala, Lalbojhi and Fulbari. The techniques provided two times more yield with 80 % less seed, as compared to the conventional practices.

Results

Around 8464 farmers in 13 food insecure villages of Kailali district benefitted directly from this programme. Twenty four local resource persons in FFS emerged, 2510 farmers got trained through FFS and 500 farmers were trained through demonstration. The post project assessment has found that the area under SRI reached to 86 ha. in early rice season of 2011 and it increased to 120 hectares during the main season of 2011. The rate of adoption of SRI was faster in early season rice as compared to main season.

Initially, there were several limitations like lack of FFS trained staff, non-availability of appropriate seed variety and local weeders, and farmers reluctance to accept SRI method. However, need based activities of the project, timely release of budget and good support and coordination among various stakeholders, especially FAO and

DADO (District Agriculture Development Office), helped to achieve the expected goal of the project. Adoption of SRI technology on a larger area, successful introduction of SWI technology and introduction of huge quantity of seed among the poor and highly marginalized communities are the important achievements of the project.

The project created a new wave in the agriculture development in Nepal. Hundreds of farmers in the project area have started to cultivate rice through SRI techniques. Enabling rice production during summer season when the lands remained almost barren, provided the farmer an opportunity to grow more food. Thus, the farming households which were able to produce grain enough for only 4-6 months were now able to meet the family's consumption needs for more than 8-12 months from their same piece of land. Similarly, with SRI, farmers were able to raise plants which withstood storm, wind and flood, thus making it a climate resilient crop. This resulted in more number of farmers in flood prone areas adopting SRI. SRI is being perceived as god's gift to those who are under constant threat from floods.

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