Final Report, Grant to 3A - Sahel from SRI Global Inc.

January 2013

(Translated from the original French and edited for length.)

This is the final report from "3A-Sahel" of the the introductory SRI trials from June through December 2012 in the villages of Boré, Falembougou, Manko, Kokoro, Saréféré Mirgna, Koundioume and Sobboin the Dangol Boré and Djaptodji communes, in the zone of Douentza, Mali.

3A-Sahel is a new non-profit association, formed to serve farmers in the Douentza area in response to the reduction or absence of services following the recent takeover by rebel forces in the north of Mali. Although primarily agricultural, the area suffers from chronic food insecurity. Djaptodji commune, located on the edge of the interior delta of the Niger River, has a population of 27,688 in 64 villages, and is characterized by several lakes that flood the area during the rainy season. Dangol Boré commune, further south, has a population of 21,619 in 37 villages, and is watered by seasonal rains that feed a number of large, shallow ponds. Rice is an important crop in the two communes, but yields are very low.

Project Objectives

1. Introduce SRI to improve rice productivity in these areas.

2. Have SRI adopted by farmers at all seven sites.

Detailed tasks

1. Make local leaders and cooperatives aware of SRI
2. Assist cooperatives to choose volunteer farmers for the test
3. Train two local agricultural extension agents to follow up
4. Set up and help carry out the various tasks to implement SRI
5. Collect data
6. Share information with relevant partners
7. Organize exchange visits between farmers of adjoining villages, involving village chiefs and local government officials
8. Draw up interim and final reports
9. Furnish data to the donor

Activities

Volunteer farmers in seven villages (four in Djaptodi commune, and three in Dangol Bore commune) took part in the test. Each farmer was responsible for a test plot of ten square meters. Various varieties of rice were planted, according to availability.

Commune	Villages	Volunteer farmers	Area under SRI (M^2)	Rice varieties used
Dangol Boré	Bore	12	1200	BKN Denkathia
	Falembougou	10	1000	BKN
	Manko	10	1000	BKN
Subtotal		32	3200	
Djaptodji	Sobbo	10	1000	Nerica L2
	Saréféré Mirgna	10	1000	Kogoni BG 90.2
	Koundioume	10	1000	Kogoni BG 90.2
	Kokoro	02	200	Watt
Subtotal		32	3200	
Grand Total		64	6400	

Rains for the 20121-2013 growing season started early in Dangol Bore. The training team began preliminary activities, including:

1. Introduce farmer organizations to SRI
2. Farmer organizations choose volunteer farmers
3. Draw up timeline for the growing season
4. Mark out the test plots
5. Organize manure collection for test plots
6. Distribute equipment to volunteer farmers
7. Apply manure to test plots, set up plant nurseries and transplant seedlings

To the extent possible, given the situation at the time, the local extension service of the Ministry of Agriculture and its agents were involved in the tests. An agent was available for the villages in Dangol Bore, but not for Djadtodji. The prefect for Douentza was kept informed of this initiative, as well the representative for the zone and the commune mayors.

Weeders

Fourteen mechanical cono-weeders for the project were made by a local welder, who copied a sample weeder. Six were distributed to volunteer farmers in Dangol Bore and eight to Djadptodji, two weeders

for each village. Farmers at all sites were trained to use the weeders. Heavy rains and limited number of weeders available, given the distance between SRI plots, made it difficult to weed on schedule in the Dangol Bore sites.

Data Collection

Data collection was supervised by the field agents, using data collection sheets from SRI-Rice. Data from both the SRI and comparative control was collected from planting through harvest. As part of the data collection, a sample of tillers in each plot was counted 20 days after the seeds were first soaked in water (to induce germination), and again throughout the growing season as scheduled, until the harvest. Note that heavy rains in the Dangol Bore commune slowed the development of plants there. Data has been submitted to SRI-Rice at Cornell for analysis.

Irrigation, alternate wetting and drying

Farmers were instructed in alternate wetting and drying irrigation and applied the techniques to the best of their ability. Heavy rains in Dangol Bore made it difficult to dry the plots properly, and plots in the village of Koundioume were actually inundated with water during the months of October and November. Plots in other villages were all adjacent to each other, which made it easier to properly apply alternate wetting and drying irrigation.

Oversight

Test plots were checked on a regular basis by field agents to ensure that SRI principles were properly applied, and to collect data in a timely manner. In addition, the SRI specialist made several visits to all villages to check on the quality of the work and discuss it with the farmers. Discussions focused on effective and correct application of SRI techniques in volunteer farmers' plots, showing the results to other farmers in the village, and possibilities for expanding SRI in the following season.

In one instance, the SRI specialist noted that plants in certain plots were yellowing, and worked with the farmers to correct this condition using added organic manure and urea.

Exchange visits

All-day exchange visits involving volunteer farmers from several villages, the SRI field agents, local elected officials, and agents of the government agriculture service were held to allow participants to discuss their experiences. After the participants were introduced, farmers showed their plots to the group, and the SRI specialist gave a detailed talk about SRI and what had been accomplished, followed by a question-and answer session. Visitors noted the visible difference between the SRI and control plots.

After visiting the fields, participants formed a work group to discuss what they had seen and, based on their observations, suggest specific ways to improve on what had been done. The local officials and agents of the government agriculture service declared themselves to be satisfied with how well the volunteer farmers had worked, and encouraged them to teach the SRI techniques to other farmers in their villages.

Harvest

At harvest, careful measures were taken of yields, and the tillers and panicles, according to the defined protocol.

20 plots (10 SRI test plots and 10 control plots) were harvested at each site, except for Kokoro (four plots) and Bore (24 plots). To determine the precise yield, five squares of one square meter each were harvested from different pars of each plot. Yields from each square were precisely weighed to calculate the average for the plot, and the results extrapolated to metric tons per hectare.

Plots harvested

N	Sites	Number of volunteer farmers	Dates of harvest	Number of squares harvested		Total
				SRI	Control	
01	Boré	12	25,27 & 30 Oct, 2 & 5 Nov	60	60	**120**
02	Falembougou	10	31 Oct, 3 & 21 Nov	50	50	**100**
03	Manko	10	1,4 & 7 Nov	50	50	**100**
04	Kokoro	02	9 Nov	10	10	**20**
05	Saréféré Mirgna	10	8,9 & 10 Dec	50	50	**100**
06	Koundioume	10	9,10 & 11 Dec	50	50	**100**
07	Sobbo	10	24 & 25 Dec	50	50	**100**
Total		**64**	**320**	**320**		**640**

Yields

Average yields by site, adjusted for moisture content

Sites	Rice variety	Yield in metric tons per hectare	
		SRI	**Control**
Boré	BKN	6.7	3.57
	BG 90.2	7.5	4
	Denkathia	7.7	3
Falembougou	BKN	6.53	3.38
Manko	BKN	6.5	3.02
	KAKA	6.3	3.24
	Kogoni	7.24	2.58
Kokoro	Watt	8.2	5.1
Saréféré Mirgna	Kogoni	9.3	5.17
	BG 90.2	11.95	5.2
Koundioume	Kogoni	8.71	6.1
	BG 90.2	9.7	6
Sobbo	Nerica	7.34	5.39

SRI yields ranged from 6 to 11 tons per hectare, and controls from 2 to 6 tons. SRI yields were from 2 to 6 tons higher than controls.

Next steps

Both farmers and local authorities have been pleased by the performance of SRI in this test, and certain farmers seek to buy weeders and do SRI on their own. Still, to introduce SRI on a large scale and see it well adapted in the region, we believe another two seasons of technical assistance would be required.

Summary

This introductory test for SRI covered seven villages in two communes, Djaptodji et Dangol Boré, in the Douentza district. 64 farmers took part, planting a number of different varieties: BKN, Denkathia, BG 90.2, Nerica L2 et Kogoni.

Total area cultivated using SRI techniques was 6,600 square meters of .64 hectares. Yield were satisfactory in general.

Farmers at the seven sites were equipped with weeders, and detailed crop data was collected.

Local elected officials and agents of the government agriculture service were involved throughout the test, from the beginning to harvest.

The farmer exchange visits proved to be a useful means for farmers to learn from each other and better appreciate the SRI techniques.

Note from the translator:

From September through the end of the harvest period, operations were made more complicated by the presence of jihadists in Douentza and the surrounding area, who had effectively routed government troops and taken control. The SRI specialist and field agents were obliged to pass as simple farmers, carefully hiding cameras, laptop computers, and any other items that would raise questions at jihadist checkpoints. Nonetheless they were able to finish as scheduled and collect crop data.

As of this writing, the area is free of jihadist control, as they fled following intervention by French and government of Mali forces early in 2013.