

Report from Tim Krupnik on SRI research activities in Senegal (2007):

A) At the Ndiaye Research Station, we are managing a fertility and resource use efficiency trial: The two principal treatments compare SRI and conventional practices, with 4 sub-treatments included (N fertilizer, fertilizer and rice straw, rice straw alone, and no nitrogen). Rice straw is one of the few sources of organic matter available to rice farmers in the Sahel region. Observations have focused largely on fertility use efficiency, interactions between cropping systems and organic matter and fertilizer, water productivity efficiency and irrigation inputs, and weed community dynamics. The studies on water productivity are very important because future water shortages are predicted to be severe in the Sahel.

B) A simulated stem borer damage trial examining plant resilience to de-tillering in both SRI and conventional farming systems. This will evaluate whether SRI might give farmers some advantage by enhancing the crop's capacity to generate large numbers of compensatory tillers in response to simulated pest attack.

C) A pot experiment examining the above mechanisms in more detail.

D) A variety trial at the Fanaye Research Station examining crop performance and weed competitiveness of seven varieties, including the New Rice For Africa (NERICA) with SRI and conventional management. Varieties include the now popular Sahel 108, Sahel 202, Jaya, IR64 (NERICA *O. sativa* parent variety), TOG 5681 (*O. Glaberrima* and NERICA parent variety), WAS 1 (a NERICA upland variety), and WAS 161-B-9-2 (a NERICA lowland variety).

1. In an effort to evaluate the potential of farmers in the region to adopt SRI, a 14-question multiple choice survey is being administered in conjunction with WARDA's Sahel Station socioeconomic research team and the Senegalese Société Nationale d'Aménagement et d'Exploitation des Terres du Delta et des Vallées du Fleuve Sénégal et de la Falémé (SAED). Questions focus on farmers' current transplanting or plant establishment practices, fertility management, and water management methods as they relate to SRI recommendations. We expect to have 50 respondents each in both the Senegal River Delta and the Middle Valley.
2. Next season (dry season 2007), we expect to begin on-farm trials of SRI compared to conventional transplanting and broadcast seeding methods on farmers' fields. We will be partnering with the FAO Farmer Field School program in this effort, and we expect to work with at least 16 farmers in on-farm evaluations. A number of cono push weeders have been fabricated by local blacksmiths for use in these trials. Besides actively managing trials, farmers will participate in the evaluation of SRI by providing personalized assessments of each cropping system and ranking their interest in adopting and/or modifying the system. Farmers' recommendations for improvement of weeder designs and as an alternative to herbicides will also be evaluated.
3. Further efforts to examine socioeconomic aspects of SRI in the Senegal River Valley context will begin in mid-2008.



**View of the resource use efficiency trial just after transplanting; 16 of the 32 plots are visible here. Bunds are lined with plastic buried 20 cm deep to prevent water and nutrient movement between treatments (Ndiaye Research Station).**



**Visitors from the FAO Farmer Field School Training-of-Trainers formation discussing the experiments at the Ndiaye Research Station. Since beginning these experiments in August 2007, we have had over 60 visitors.**

**PhD. Candidate Tim Krupnik showing a sample of an SRI rice plant (mid-tillering) with an intact 20cm<sup>3</sup> cube of soil that will be washed off to provide measures of root weights.**



**Dr. William Settle (Biodiversity Officer in the FAO Plant Protection Division, based in Rome) and Dr. Mohamed Hamagarba, West Africa Regional Coordinator for the FAO Farmer Field School Program, visiting SRI trials at the Ndiaye Research Station and learning about irrigation water measurement methodologies.**