



# System of Rice Intensification in Vietnam: Doing more with less

## Introduction

Vietnam is a fast-growing economy with a population of 91.7 million in 2015. Rice is grown on 85% of cultivated land. Annual paddy (unmilled) rice production grew from 19.2 million metric tons in 1990 to 42.4 million metric tons by 2011, and in 2012, Vietnam exported eight million metric tons of rice. These yield increases were achieved through improved seeds, but also through increased use of fertilizer, herbicides, and pesticides, with corresponding negative effects on the health of environments and communities.

The population of Vietnam is 66% rural, and while the average size of a family farm in the southern part of the country is one to two hectares, in the north the average farm size is less than 0.5 hectare, often fragmented into smaller plots. More of the rice grown in the north is consumed by the farmer's household rather than sold, and farmers place greater importance on rice quality.

The State plays a strong role in providing services to its population and ensuring farmers' access to inputs and credit. Within rural villages, there are multiple farmer groups of 20 to 30 families each. Agricultural technicians and extension agents organize these groups for training.

## Description of the Agroecology system



Figure 1. Rice growers south of Hanoi were among the first to try the System of Rice Intensification, with support from Oxfam America and the PPD. Liem Huong Thy, 53, (right) is one of the local experts in SRI. She teaches other members of her cooperative. Chris Hufstader / Oxfam America

The Plant Protection Department (PPD) of Vietnam's Ministry of Agriculture and Rural Development first learned about the System of Rice Intensification (SRI) from Indonesian counterparts. With support from FAO, PPD began conducting SRI training in three provinces in 2003.

PPD promoted SRI in Vietnam as a set of five technical principles:

- Use healthy young seedlings
- Transplant single seedlings
- Weed early
- Manage water and aerate soil
- Apply manure and compost

When farmers follow these principles, their rice plants grow stronger roots and more easily resist pests and diseases, allowing farmers to reduce their use of expensive fertilizers and insecticides.

Some of the specific practices adopted by farmers included:

- Thoroughly preparing and levelling soil
- Carefully transplanting single seedlings when they have 2 to 2.5 leaves



- Transplanting seedlings in a square pattern, 25x25 cm or more
- Weeding at 10 days after transplanting
- Letting the field dry out during vegetative growth, and then again before harvest

However, in some areas drainage is difficult. In these places, SRI can be partially applied, with a focus on transplanting practices as above, but using seedlings of not more than four leaves.

Starting in 2006, Oxfam, PPD, the Centre for Sustainable Rural Development (Vietnam), and Hanoi University of Agriculture joined together in an SRI extension partnership. The extension approach placed emphasis on experiential learning and knowledge sharing. The first phase of the extension program tested SRI in a range of local contexts, building an evidence base and, simultaneously, farmers' and local technicians' abilities to adapt the SRI principles to their contexts.

Then, the program developed technical and extension materials and expanded, using farmer field schools (FFS) and farmer-to-farmer extension, with appropriate backstopping from PPD technicians. FFS participants are 70% women, and they have proven to be better at training others than their male counterparts. On average, after participating in an FFS, each woman helped five to eight other farmers adopt SRI principles, while each man helped one to three other farmers.



**Figure 2. Le Ngoc Thach, 52, is the chairman of the rice grower cooperative in Dai Nghia commune. Chris Hufstader / Oxfam America**

### Political space

Following the initial trials, the government made significant public sector investments in numerous provinces that greatly accelerated the program, supporting smallholders' access to the SRI package.

The recognition of SRI at the central government level was critical to creating space for provincial-level partners to access resources. The Ministry of Agriculture and Rural Development approved SRI as a technological advance in rice production, and recommended its entities apply for participation. It recognized SRI as an environmentally friendly and low-cost means of reducing crop loss due to pests and diseases. However, different views exist within the Ministry and its provincial counterparts on the efficiency of SRI adoption. Because of decentralization, key decisions are made at the provincial level, leading to uneven adoption of recommendations related to SRI.



When seeking support from policymakers, key tools for agroecology advocates include good documentation of program results, and the organization of field days and visits that allow policymakers to hear directly from farmers. Using a variety of communication methods to reach policymakers, as well as communities, maximizes awareness of SRI.

## Outcomes of the practices

On average, farmers using SRI methods increase their income by \$200 per hectare compared to conventional rice, a significant boost in a country where annual per capita incomes, although growing, now average \$2,000. The increase in income is a result of both higher yields – 500 kilos or more per hectare with SRI growing methods – and savings on input purchases. Farmers use 70% to 90% less seed and 20% to 25% less nitrogen fertilizer, as well as reducing their use of pesticides by 45% or more.

By 2011, 1 million farmers, some 10% of the total national farming population, had adopted SRI, following a partial or full set of its principles. The PPD reported that SRI adoption covered 16% of the rice land in the north, and 6% of the rice land in the country overall. SRI farmers earned an estimated additional income of \$18.35 million (VND 370 billion) in the spring crop season of 2011. As of 2015, SRI had reached over 1.8 million people (0.8 million smallholders in the provinces originally supported by Oxfam) and nearly 400,000 hectares of land.

Farmer experimentation and documentation of lessons have been key components of the program, helping to mitigate the tendency of some extension programs toward a prescriptive approach. By experimenting with SRI practices, farmers strengthen their capacity to innovate, and build their confidence.



Figure 3. Loc Thi Su, 36, is visiting her rice field in Na Tap village, Dong Thinh commune, Dinh Hoa district, Thai Nguyen province, Vietnam. Chau Doan / Oxfam America



## Message from farmer to farmers

*"We used to have a food shortage for one to two months each year. In the past, when we transplanted it was time consuming and we suffered from hunger. Now it is less time and we grow more rice. Now with the introduction of new technology we use fewer inputs, less pesticides, and we have more time to raise livestock or do other things to earn money.*

*We did an experiment: we transplanted rice in groups, and it was looking good, but the wind blew it all down. Now we transplant the seedlings individually and we drain out the water. The stems get very strong and they can stand up to the wind without any problems, the roots are firmer.*

*This year I did not spray at all, and I used to use a lot of herbicide; now I don't use any at all. I'm growing a lot with SRI. We use less pesticides so our health is better."*

—Message from Loc Thi Su

*"When people come here, they see the clean environment, they see the fish in the lakes. The most important success is the clean environment. It's what we treasure most."*

— Message from Tran Minh Tien, a famer in Dai Nghia