

SAFE-World Project/Initiative Summary

Country: Madagascar

Project/Initiative Title: System of Rice Intensification - SRI

Nos. farmers: 20,000

Hectares: 10,000

Agro-Ecological Zone: I

Improvement types

1x	2	3x	4	5x	6x	7	8	9
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A. Key Impacts

A1 – Productivity

	Before/Without	After/With	% change
Rice	2000-3000 kg/ha	8500 kg/ha	
Rice	4000 kg/ha	10,000 kg/ha	150

A5 – Key changes in farm / regional system

Traditional yields - average 2-3 t/ha, new average 8.5 t/ha (range 6-10 t/ha)

Careful management and redesign is the key:

1. Transplanting immature seedlings
2. Aerating soil
3. Weeding
4. Not flooding during growing period

D. Contact Point for Project/Initiative

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E. Project Narrative

Madagascar: System of rice intensification (SRI)

The System of Rice Intensification (SRI) was first developed in Madagascar by Fr. Henri de Laudanié in the 1980s, has been promoted since 1990 by the Association Tefy Saina, and evaluated by the Cornell International Institute for Food, Agriculture and Development. The system has improved rice yields from some 2 t/ha to 5, 10 or even 15 t/ha on farmers' fields. This has been achieved without having to use purchased inputs of pesticides or fertilizers. The SRI is centred on making best use of the existing genetic potential of rice by breaking many of the conventional 'rules' of management:

- i) Rice seedlings are usually transplanted at about 30 days (sometimes as late as 40-50). In the SRI, seedlings are transplanted at 8-12 days. This increases tillering – with SRI plants typically having 50-80 tillers compared with 5-20 for conventional ones.
- ii) Rice seedlings are usually planted close together to minimise weed infestation. But in the SRI, they are planted at least 25 cm apart in a grid pattern rather than rows. This facilitates mechanical weeding, as well as reducing seed use from 100 kg/ha to about 7 kg/ha. Wider spaced plants develop a different architecture, with more room for roots and tillers. Better root systems means reduced lodging.
- iii) Most scientists and farmers believe that rice, as an aquatic plant, grows best in standing water. In the SRI, however, paddies are kept unflooded during the period of vegetative growth. Water is only applied to keep the soil moist, which is allowed to dry out for periods of 3-6 days. Only after flowering are paddies flooded, which are then drained 25 days before harvest (as for conventional rice). Such management encourages more root growth.
- iv) Flooding is the conventional approach to weed control. With SRI, farmers must weed up to four times – mechanically or by hand. Farmers who do not weed still get respectable yield increases of 2-3 fold; but those that weed get increases of 4-6 fold.
- v) SRI farmers use compost rather than inorganic fertilizers

The improvement in rice yields with SRI have been so extraordinary that, until lately, they have been simply ignored by scientists. SRI challenges so many of the basic principles of irrigated rice cultivation, and so many professionals have been entirely sceptical. But it is the number of farmers adopting SRI that is proof of its effectiveness and efficiency.

It is estimated that some 20,000 farmers have now adopted the full SRI in Madagascar (Tefy Saina estimates that 50-100,000 farmers are now experimenting with elements of the system). Cornell have helped research institutions in China, Indonesia, Philippines, Cambodia, Nepal, Cote d'Ivoire, Sri Lanka, Cuba, Sierra Leone and Bangladesh locally to test SRI. In all cases, rice yields increased several fold. In China, for example, yields of 9-10.5 t/ha were achieved in the first year (compared with a national average of 6t/ha).

Sources: Norman Uphoff; Uphoff, 2000a, b

