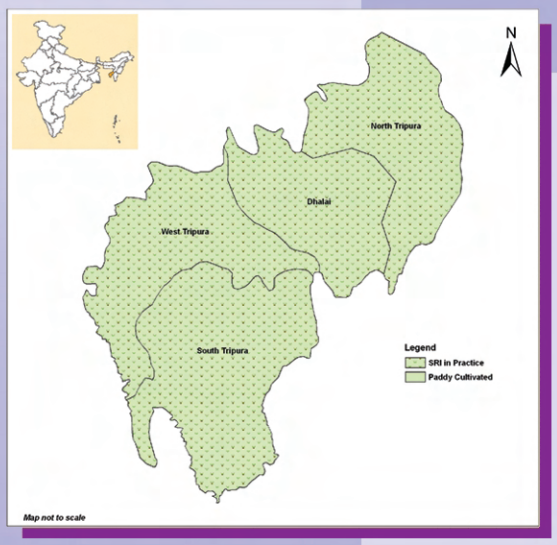
SRI Fact Sheet - Tripura



Total geographical area (km^2)	10,49,169
Total population (million)	3.19
Total cultivable area (million ha)	0.32
Total paddy area (million ha)	0.25 (2006-07)
Paddy area (%) to total cultivable area	78.1
Major rice season(s)	Apr-Jun (First Kharif-Aush) Jul-Nov (Kharif-Aman) Dec-Mar (Boro)
Total paddy production (million tonnes)	0.93 (2006-07)
State's contribution to national paddy production (%)	0.66
Paddy productivity (t ha^{-1})	3.71(2006-07)
All-India rank in productivity	7
Constraints in paddy cultivation	Water, labour & availability of fertilizers

- Data collected from several farmers in Tripura showed a 165 percent increase in the net return by SRI cultivation over conventional cultivation.
- Highest yield obtained by farmers was 10.71 t ha^{-1} in North Krishnapur, Teliamura, West Tripura with variety MTU 7029 grown in 0.45 ha during boro 2006.
- Farmers have difficulties in adopting all the SRI principles due to a mindset or in other words due to traditional habits.
- Tripura launched a "Perspective Plan for Self-Sufficiency in Food grains by 2010" in the year 2001. SRI was added to it following the mid-term review.
- Women farmers of tribal and Manipuri community are frontrunners in SRI, and their farm activities and crop management is excellent.

Background

Rice is the principle crop of the state covering 78 per cent of cultivable area. Paddy area has almost remained stable at 0.25 million ha. Paddy production during the last decade fluctuated between .74 to .93 million tonnes and the paddy productivity ranged from 2.9 to 3.7 t ha^{-1}. Food security strictly depends on rice production as no other cereals are grown by the farmers in the state due to food habits and agro-climatic situations. Self-sufficiency in food grains can be attained only through enhanced productivity of rice in the coming days.

On the other hand due to demographic pressure and shrinkage in the cultivable area, especially rice, the state Department of Agriculture has started to promote SRI method of rice cultivation to attain self sufficiency in food grains.

Evaluation of SRI was initiated in the *boro* season of 1999-2000 at State Agriculture Research Station of the Department of

Agriculture. Adaptability under different agro-climatic conditions of Tripura was studied from 1999-2002 for five seasons covering both *aman* and *boro* seasons. The yield obtained in the first year trial was poor but from the third season there was positive response with better understanding of the principles.

The Department of Agriculture started SRI demonstrations in 2002-03 and the number increased from 44 to 1,62,485 in 2007-08. Large-scale adoption started through demonstration in the farmers' field (0.2 ha) with the cultivation incentive of Rs. 4,000 per ha.

SRI is promoted under the State Plan and the Government of India's (GoI) Macro Management Scheme. Research was conducted solely under the State Plan and popularization/ adoption in fields were done through convergence of State Plan and the Macro Management Scheme of GoI. The Panchayat Raj Institute is collaborating in the demonstrations across the state. Agriculture assistants/village-level workers posted in every village of Tripura are responsible for dissemination and adoption of any new technology on fields.

Local newspapers have played a very significant and positive role through spreading information about the yield advantage of SRI over conventional practice and through interviews of farmers practicing SRI.

Experimental demonstrations conducted on the farmers' fields, in the initial years, were personally visited by Honorable Chief Minister, Agriculture Minister, other Ministers, Chief Secretary, and many other dignitaries and high officials of the state interacted with the farmers. Public Accounts Committee (PAC), Tripura Legislative Assembly also visited the SRI plots and interacted with the farmers.

Training programme were conducted locally for all categories of field functionaries. All officers having basic qualification in agriculture were trained in the year 2003-04. District level trainers team was developed through rigorous on-farm practical and theoretical training and they imparted training to grassroot-level field level staff.

Performance

The differences in the yield attributes of the conventional and SRI crop observed in farmers' fields are presented in the table 1.

Table 1 : Yield attributes in conventional and SRI crops.

Attribute	Conventional	SRI	Percent increase
No. of tillers per hill	12 - 20	40 - 60	200 - 233
No.of panicles per hill	8 - 12	24 - 36	200
No.of grains per panicle	80 - 120	140 - 220	75 - 83
Length of panicle (cm)	9 - 16	20 - 30	88 - 122
Filled grains (%)	75 - 80	90 - 95	15

The grain yield data showed that in cultivars including land races, SRI produced higher yields (see Table 2).

Table 2 : Grain yield of varieties, hybrids and land races in Tripura (t ha^{-1})

	Conventional		SRI	
	Minimum	Maximum	Minimum	Maximum
High yielding varieties	2.5	5.2	4.6	8.5
Hybrids	6.0	7.0	7.2	8.7
Land races	2.0	3.0	3.8	4.3
Scented land races	1.5	2.0	3.1	3.4

Data collected from several farmers in Tripura showed a 165 percent increase in the net return by SRI cultivation over conventional cultivation (see Table 3).

Table 3 : Economics of SRI Cultivation in Tripura
(Average over observations from several farmers)

Item of Expenditure	Rupees ha^{-1}	
	Conventional	SRI
Seed	750	75
Seed treatment	30	3
Fertilizer, bio-fertilizer & FYM	6238	4088
Irrigation	2100	900
Labour	8875	8165
Plant protection chemicals	500	500
Tillage operation	2500	2500
Total cost of cultivation	20993	16231
Gross return(Rs. 8000 per tonne of grain)	36000(4.5 t ha^{-1})	56000(7.0 t ha^{-1})
Net return	15007	39769
Return per rupee investment	1.72	3.45

Highest yield obtained by farmers was 10.71 t ha^{-1} in North Krishnapur, Teliamura, West Tripura with variety MTU 7029 grown in 0.45 ha during Kharif 2006.

With the introduction of SRI in Tripura the total seed requirement has decreased. The savings in per ha of paddy is 45 kg seed which in turn contributing to the food grains (See table 4)

Table 4 : Year-wise savings of seed quantity in Tripura due to adoption of SRI

Year	Area under SRI(ha)	Seed requirement (tonnes) under conventional cultivation(@ 50 kg ha^{-1})	Seed requirement (tonnes) under SRI(@ 5 kg ha^{-1})	Net savings(tonnes)
2006-07	14678	733.90	73.39	660.51
2007 -08	32497	1624.85	162.48	1462.37
2008-09	24782(Aman)	1239.10	123.91	1115.19(Aman only)

Experiences in Adoption

In Tripura all sections of society are practicing SRI. Women farmers of tribal and Manipuri community are frontrunners, and their farm activities and crop management is excellent.

Farmers have difficulties in adopting all the SRI principles due to a mindset or in other words due to traditional habits. Sometimes a fear psychosis also prevents switching over to a new system. Farmers who have practiced the SRI for two to three seasons could easily overcome the difficulties.

Way Forward

Tripura launched a "Perspective Plan for Self-Sufficiency in Food grains by 2010" in the year 2001. During the mid-term review it was observed that the growth rate of the food production is not at desired level. Hence Department of Agriculture has reviewed the strategy. Rice being the basic growth engine of the state agriculture as well as economy it was decided to increase the production and productivity by adoption and popularization of SRI to cover at least one lakh ha paddy area which will increase minimum one lakh tonnes of rice than the present production level in the year 2011-2012 (see Table 5).

Table 5 :Projected increase in food grains production (lakh tonnes) due to SRI

Year (1)	Projected food grains requirement (2)	Likely Production in present trend (3)	Additionalproduction due to SRI (4)	Projected production (3+4= 5)
2008-09	8.09	6.74	0.50	7.24
2009-10	8.22	6.88	0.75	7.63
2010-11	8.34	7.03	0.90	7.93
2011-12	8.48	7.17	1.00	8.17

Source for basic data in tables and map : Directorate of Rice Development (DRD), Patna; Department of Agriculture and Cooperation Ministry of Agriculture, Govt. of India; Survey of India (Soil), Hyderabad

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