

## First Encouraging TN IAMWARM RESULT

**K.Shanmugam**  
MANIMUTHAR SUB BASIN

**TNAU SRI**



<b>Recorded yield</b>	<b>8.75 MT.</b>
<b>State average</b>	<b>4.75 to 5.00 MT</b>
<b>Increase in yield</b>	<b>60 to 70 %</b>
<b>Net Income</b>	<b>Rs.24000/- Per Ha</b>



## TN IAMWARM PROJECT



### Glimpses of SRI Technology



### TNAU Experience



**Multi Disciplinary Project Unit, Chepauk,  
Chennai 600 005**

### RICE WORLD SCENARIO

- Globally, rice is cultivated in 171m ha. Rice is being grown in 114 countries.
- Nearly 90 per cent of the world's rice is produced and consumed in Asia. It is a staple food for more than half of the world's population. Rice is indeed a global food grain.
- Per capital consumption of milled rice (Global scenario) has increased 40 per cent in the last 30 years, from 61.5 kg to about 85.9 kg.
- The irrigated rice area accounts for approximately more than one third of the global overall irrigated area, In particular, of the total rice area, about 55% is under irrigation.
- Global rice production has to be increased manifold in a sustainable fashion to match the ever increasing population. There are several ways for doing this, but the end results need to be considered in manifold dimensions.
- Globally, the present day Rice production faces serious problems, including depleted or depleting water resources, short supply of labour and insufficient or inappropriate institutional support.
- Potential constraints to increase the production of rice is not only the paucity of land for cultivation, but also water shortages.
- Scarcity of water is triggered in areas where the conventional water-intensive method of irrigated rice cultivation through inundation is followed.
- On comparing the relative water requirements of the world's three main cereal staples viz. maize, rice and wheat, it was found that global paddy crop needs approximately up to five times the irrigation withdrawals needed by the two other major cereals combined.

- About 70 to 80 per cent of global freshwater withdrawals are for the agricultural sector, particularly irrigation, and rice accounts for about 85 per cent of this, mainly due to inundated production.
- In Asia, about 84 per cent of water withdrawal is for agriculture, used mostly in flooded rice irrigation. Rice cropping today has Lion's share i.e., about 45 percent of irrigated areas.

### Water Utilization Scenario

Particulars	US	Europe	South Asia	India	Tamil Nadu
Per Capita Water Resource(in cum)	9535	1112	1255	1167	750
Water Utilised for Agriculture (in %)	6.8	4.43	46.62	44.03	86.76

- Existence of mismatch between the resource availability and utilization levels in Asia is conspicuous.
- It is estimated that by 2025, 17mha of rice area in Asia will face physical water scarcity concomitant with global shortfall of over 200MT.
- Since rice is such a crucial crop for Asia the challenge is to improve its Water and Agriculture productivity is the need of the hour.
- Given these constraints, the conventional method of rice cultivation will obviously become expensive, primarily in terms of water resources.
- For most rice-rich and rice-dependent nations, there is a increasing demand to adopt alternative, eco-friendly and people oriented production methods. Many of the countries have started to realise that employing the rice cultivation methods that use water judiciously, such as the SRI system of Rice intensification method, is a potential alternative tool.

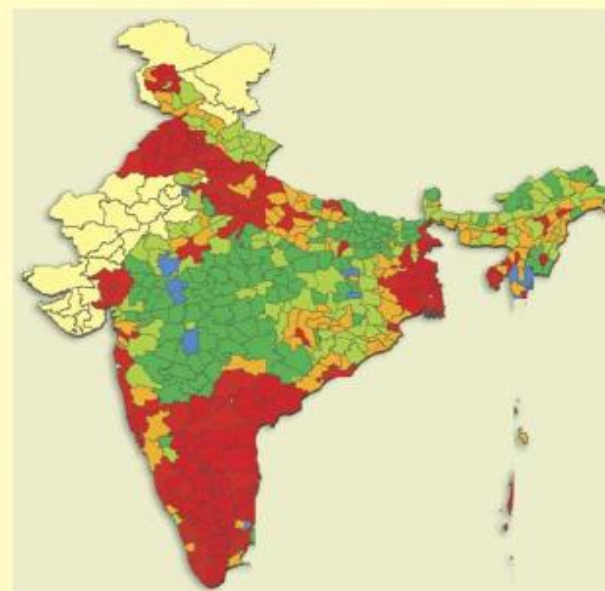
### Districtwise Rice Yield in India 2004-05

- ❖ Rice plays a pivotal role in Indian economy as the staple food for two thirds of the population.
- ❖ Globally, India ranks first in area (42.4 M.ha.)
- ❖ Provides 43 per cent calorie requirement for more than 70 percent of Indians.
- ❖ The expected national rice output level is 138.9 m t (2006-07)
- ❖ In India, rice is being cultivated in 534 districts out of 607 districts.
- ❖ But, productivity levels in 20 per cent of the districts with an area of 6.9 m hectares are deplorably low i.e., less than one tonne per ha.
- ❖ Productivity level in another 40 per cent of districts is in the range of one to two tonnes per ha.

### Rice Production in India

Details	1950-51	2004-05	% increase
Area (million ha.)	34	41.9	23.24
Production (million tonnes)	25.8	93.10	260.85
Productivity (Kg/ha.)	668	2078	211.08

### District-wise Rice Yield in India – 2004-05



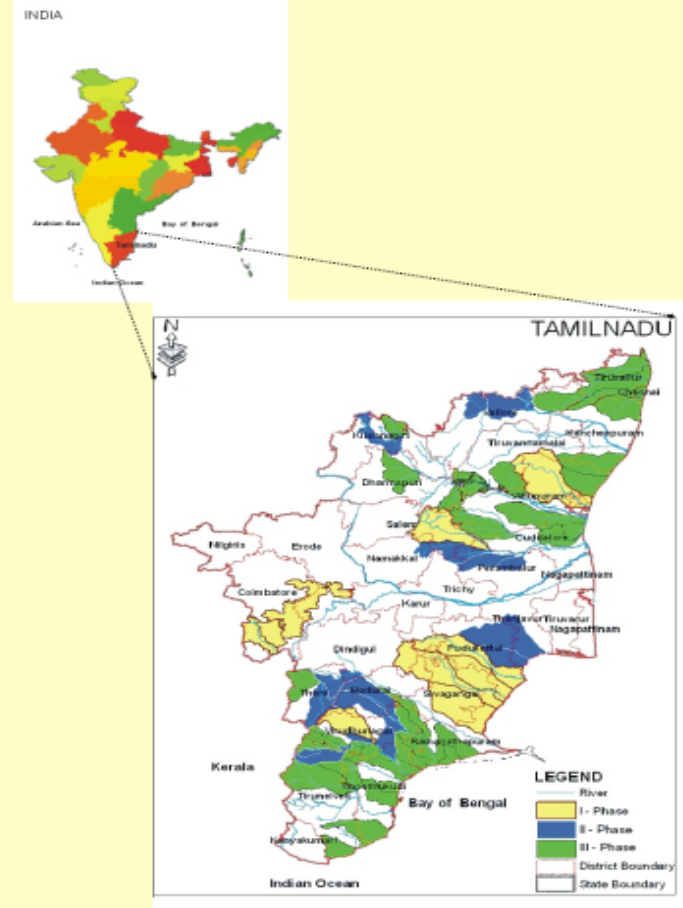
	No. of Districts	Area ('000 ha)	Production ('000 t)	Average Yield (t/ha)	Yield (t/ha)
	127	6987	4622	628	< 1
	113	7520	9143	1263	1 - 1.5
	98	8144	13640	1718	1.5 - 2
	87	8107	15915	2291	2 - 2.5
	119	12712	40930	3219	> 2.5
	40	Non Rice Cultivation District			
	20	Data Not Available			
<b>TOTAL</b>	<b>604</b>	<b>41380</b>	<b>82428</b>	<b>1923</b>	

Source: www.117.199.181p  
 2. National Bureau of Statistics, 2006  
 3. 2005 - Survey of India

## RICE IN TN IAMWARM SUBBASINS

- Rice is not only a plant from graminaceae family but it is Lifeblood for millions of people.
- Rice is a way of life and is deeply embedded in tamil culture, rituals and myths of the people since time immemorial. Rice is part and parcel of the life from births to weddings and even to deaths. The harvest festival like Pongal is also oriented towards rice.
- It is a staple food for the entire State's population. Rice is cultivated in 21.0 lakh hectares in Tamil Nadu and the annual production covers around 70-80 lakh tonnes.
- Tamil Nadu ranks first in the country in productivity of rice. (2000-2001). Tamil Nadu productivity is 3,494 kg/ha, which is 79% higher than the productivity (1,947 kg/ha) of the country.
- The crop is cultivated in 28 districts of Tamil Nadu and the rice cultivating seasons extends throughout the year. Rice is cultivated in varied production environments viz., irrigated and semi-dry. Rice crop varieties have varied duration viz., Extra, short duration, medium duration, long duration ranging from 104 to 180 days. The climate in the State, provides an ambient environment for rice cultivation throughout the year.
- In a predominantly Agricultural State like Tamil Nadu, there is need for intensifying efforts to improve productivity, and sustainable farm income. Long-term growth in agriculture depends in large part on increasing the efficiency and productivity of use of water and many projects are designed to meet the above target.
- Accordingly, world bank assisted IAMWARM project (Irrigated Agriculture Modernization and Water Bodies Restoration and Management Project) was formulated with the objective to improve irrigation service delivery and productivity of irrigated agriculture with effective integrated water resources management in a river basin / sub-basin frame work in Tamil Nadu in selected 63 subbasins commanding an area of 6.17 lakh hectares. A project outlay of Rs. 2547 crores over a period of 6 years commencing from 2007-08.

## RICE IN TN - IAMWARM SUBBASINS



### **System of Rice Intensification**

The SRI methodology was developed by Fr. Henri de Laulanié, a French Jesuit who assembled the set of simple, but synergistic practices that now constitute SRI.

SRI changes the management of rice plants and of the soil, water and nutrients that support them in simple but specific ways.

SRI is not a set technology but rather derives from certain insights about how rice plants can be induced to become more productive, particularly by eliciting greater root growth.

#### **Critical Steps in SRI**

The success of SRI entirely depends on the adoption of critical management steps. They are

##### **Seedling Age:**

Young seedlings if carefully planted into an aerobic soil environment, not submerged in hypoxic soil, have more vitality and resilience, and more growth potential as can be explained in terms of phyllochron analysis (Stoop et al., 2002). So, young seedling of two weeks duration is recommended.

##### **Number of Seedlings per hill**

This intuitive notion is contradicted by the known fact that when any plant is crowded together, the root growth is inhibited, something that applies to rice as much as any other plant species. Hence, planting of single seedling should be adopted.

### **Square planting**

High density among plants inhibits their growth and performance, although spacing is a parameter to be optimized rather than maximized so as to get the greatest number of large and fertile panicles per unit area. Square planting with 25 cm X 25 cm ensures optimum space for efficient utilization of resources. Besides it eases operation of weeder usage.

#### **Water Management**

Hypoxic conditions cause rice plant roots to degenerate (Kar et al., 1974). Continuous flooding early in the growth cycle will diminish the size and health of plants' root systems, making them less able to tolerate water stress later in the cycle. Plants with truncated roots cannot access the residual soil moisture in lower horizons that is accessible to plants which have large and functioning roots systems to maintain their growth and productivity. Hence, alternate wetting and drying is advocated.

#### **Mechanical (Cono) Weeder usage**

Square planting eases the cono / rotary weeder operation in two directions, and thereby weed management could be effected efficiently. The greatest part of the space between plants is cleaned by the "teeth" on the small rotating wheels of such weeder, and weeds germinating near plants will be covered by the churned-up mud, which will give the rice enough time to grow in advance of the weeds. Hence, mechanical weeding is recommended four times from 10 DAP at weekly intervals.

### Conventional Vs SRI Method of Cultivation

#### Cost of Cultivation

Sl.No.	Details	Total Expenditure (Rs. / Ha)	
		Conventional	SRI
1.	Nursery	2110	681
2.	Main field preparations	2005	2005
3.	Manures & fertilizers	7254	7254
4.	Transplanting	2400	3200
5.	Weeding	3200	1520
6.	Irrigation	300	240
7.	Plant Protection	660	660
8.	Harvest	3500	3500
	<b>Total</b>	<b>21419</b>	<b>19060</b>

#### Economic benefits

Sl.No.	Details	Conventional	SRI
1.	Revenue from grain yield @ Rs. 7 / Kg	42441	56014
2.	Revenue from straw yield @ 0.25 Re / Kg	2263	2918
3.	Total revenue (in Rs. / Ha)	44704	58932
4.	Total Expenditure (In Rs. / Ha.)	21429	19060
5.	Net Profit (in Rs. / Ha)	1149	23868
6.	C B Ratio	2.08	3.09

### Differences between conventional and SRI method of cultivation

Practices	Component	Conventional	SRI
Nursery (to plant 1 ha)	Area	800 m <sup>2</sup>	100 m <sup>2</sup>
	Seed rate (kg ha <sup>-1</sup> )	Recommended : 60 Farmers' practice : 125 - 150	7.5 kg ha <sup>-1</sup>
Planting	Seedling age	21 +	14
	Number of seedlings hill	2 -3 +	1
	style	Recommended : Rectangular Farmers' practice : Random	Sqaure
	Spacing	Recommended: 15 x 10 cm (105 - 115 d crop) 20 x 10 cm (135-155 d crop) Farmers' practice : Variable	25 x 25 cm
	No. of hills m <sup>2</sup>	66 / 50 / ±	16
Irrigation	Recommended	Irrigate to 5 cm depth one day after the Disappearance of ponded water	irrigate to 2,5 cm depth (after headline crack formation up to panicle initiation and after that after disappearance of Ponded water.
	Farmers' practice	Flooding (variable depths)	
Weeding	Recommended	Pre-emergence herbicide + hand weeding at 30 DAT (or) hand weeding at 15, 30 DAT	Using rotary / cono weeder in between rows in both directions at 10, 20, 30 and 40 DAT and hand removal of left out weeds

## Advantages of SRI

### Nursery

- ♦ Reduction in nursery area from 800 m<sup>2</sup> to 100 m<sup>2</sup> (to plant 1 ha)
- ♦ Drastic reduction in seed rate from about 60 kg ha<sup>-1</sup> to 7.5 kg ha<sup>-1</sup>.
- ♦ Lesser pest problems in the nursery
- ♦ Reduction in nursery duration from 21-30 days to 14 days

### Transplanting

- ♦ Square planting to enable the crisscross use of weeder
- ♦ Reduction in planting density from 50-66 hills m<sup>2</sup> (15 cm x 10 cm or 20 cm x 10 cm) to 16 hills m<sup>2</sup> (25 cm x 25 cm)
- ♦ Reduction in number of seedlings per hill from 2-3 to 1.

### Weeding

- ♦ No requirement of herbicide
- ♦ One labourer with a rotary weeder can cover an area of about 0.13 ha in a day.
- ♦ Reduction in labour requirement for weeding from 30-60 ha<sup>-1</sup> to 25 ha<sup>-1</sup>
- ♦ Multiple benefits of using weeder (weed control; less labour for weeding; incorporation top dressed fertilizer; disturbance to the soil; Pruning of older roots increased crop growth)
- ♦ Timely removal of weeds facilitating better absorption of applied nutrients
- ♦ Small farmers can do the weeding by themselves.

## Irrigation

- 25-50% water saving from planting to harvest.

## Crop response

- Higher root growth
- Higher tillering of even shy tillering genotypes
- Higher plant height
- Increase in number of productive panicles m<sup>-2</sup>
- Higher number of grains panicle<sup>-1</sup>
- Higher % of filled grains per panicle
- Lodging resistance
- Leaves remain green up to harvest
- Resistance to adverse effects of drought
- Higher nutrient use efficiency
- Higher biochemical activities
- Higher grain and straw yield.

## Profitability

- higher outturn of milled rice
- Higher net profit.

## Other benefits

- All genotypes (high yielding varieties, hybrids, land races) respond well

### SRI Nursery in Pambar & Manimuthar Sub Basin

- ♦ Recommended seed rate for one ha is just 8 kgs.
- ♦ Nursery area is reduced to 100 sq. M.
- ♦ Usage of good quality FYM judiciously.
- ♦ Form raised beds @ 1 X 5 m and 20 beds are required for one ha .
- ♦ Powdered DAP may be applied @ 95g/raised bed in total 760 g should be used.
- ♦ Evenly Spread polythene sheets over the beds. Old polysacks can also be used
- ♦ Fill soil evenly over the sheets upto 4 cm
- ♦ Seed treatment can be done: : Pseudomonas 10 g/ Kg seed
- ♦ 200 g Azophos biofertiliser/ 3 kg seed
- ♦ Uniformly spread 375 g of seeds in each 5 sq m. nursery bed.
- ♦ Flower pot water is advisable.
- ♦ Cover the seed bed using locally available mulching materials like coconut fronds/straw

### Farmers Opinion



Th. Annamalai, a farmer from Rangium village, Pambar sub basin, 3 kg seed in place of 30 per acre Impossible But . . . as the days Progressed to the transplanting day ... wondered about the single seedling planting.

Th. Kailash, a farmer from Palaiyur village, Pambar sub basin "Initially raising of mat nursery seems to be skeptical, finally I fully convinced by the technology and the hands on training Given by the researchers.



### SRI Nursery in Pambar & Manimuthar Sub Basin



Demonstration of PAI Nursery Pattnam Village



SRI Nursery ready for planting  
Kunnathupatti Village



### Community SRI Nursery in Varahanadhi Sub Basin

- Raising of community nursery for SRI is a new concept and involves certain degree of technical expertise which requires training especially in the initial phase of inception.
- Formation of raised beds, sowing of seeds, flakes of seedling pads require training.
- Scale economy is reaped if the nursery area exceeds critical area which can be achieved through establishment of community nursery.
- Pioneer steps were taken in Varahanadhi sub basin and community nursery was raised in Bombur and Siruvai village. This concept would be highly useful while Upscaling the SRI through SRI transplanters

### Farmers say

Initially mobilizing the farmers for community nursery was little difficult, but the unstinted effort paid. We raised nursery area in 40 cents and planted in 40 acres.



**Th. K. Rajendran**  
Keermampattu village,  
Varahanadhi sub basin.

### Community SRI Nursery in Varahanadhi Sub Basin



**Community nursery - An innovative concept - Pombur Village**



**SRI Rolling Marker - Keezhaiyur Village**

## USAGE OF ROLLING MARKERS IN SRI AT SOUTH VELLAR SUB BASIN

SRI is entirely new concept and certain critical elements are new to the farmers who are in conventional mode.  
Square planting is one such element.  
Rolling marker a Unique tool easing the square planting.  
Reduces the drudgery in transplanting  
Eases the labour and the process gets simplified.  
Squared impressions laid in the field and single seedlings are planted  
Farmers opinion

With the use of rolling markers, there is no difficulty with the labourers during transplantation and this is a convenient but potential tool.



**Th. Ravi,**  
Parambur village  
South Vellar sub basin



As a women, I know the difficulties of transplanting female labour and this simple tool really facilitated the transplanting process and in long run, SRI planting through rolling markers would be more easier than conventional planting.

**Mrs. Amsavalli,**  
Vanniampatti, Village,  
South Vellar sub basin

## Usage of rolling markers in SRI at South Vellar Sub Basin



Demonstration of rolling markers for  
SRI Square (25 x 25 cm) Planting  
Vayalagam Village

### Square transplanting at Kottakaraiyar Sub Basin

Square planting allows criss - cross movement of mechanical weeders.

Square transplanting helps movement of air and penetration of sunlight and forms a conducive micro climate.

Rice is planted In 25 X 25 cm spacing and single seedling is planted.

In sum, 16 hills per sq meter is maintained.

#### Farmers opinion

Myself and my son are keen in adoption of SRI in full sprits and

I have used marker for SRI planting and the crop stand is excellent.

**Th.P.Paulraj**  
Alambacheri village  
Kottakaraiyar sub basin



I am fully convinced and also motivating my fellow Farmers to practice this novel technique.

**Mrs Parvathy,**  
President, Village Panchayat  
Alambacheri village  
Kottakaraiyar sub basin

### Square transplanting at Kottakaraiyar Sub Basin



Square Marking (25 x 25 cm) in field  
Condition - Keelayur Village



Single seedling transplanted crop -  
Keelayur Village

### SRI field training to farmers & labourers

- SRI is synergy of five important steps. Practices like square transplanting, planting of single seedlings are new to the project area.
- Acquiring the skill is necessary for Square planting and planting of single seedlings.
- Transplanting labourer should be trained and they were trained by the researchers in the field.
- Novel idea of training the Self Help Groups (SHGs) was done which would have beneficial impact in larger areas.
- SRI is picking up well in the sub basins and on large scale adoption, need of cono weeders and SRI markers are absolutely essential. Hence, to cater the increasing demand, rural artisans were trained on fabrication of these handy tools that may render the availability of these tools at the farmer's door step.

#### Trainee's opinion



As SRI is a new practice, especially planting with single seedlings, cono weeder usage is vague and seems to be difficult. On receiving the training from the researchers we find it user friendly...

**Mr.Pachaiyappan,**  
Farmer from Sokuppam village  
Varahanadhi sub basin

### SRI field training to farmers & labourers



Sri square planting under progress Vayalagam Village, South Vellar Sub Basin



Skill training for SRI square planting for SHG & farm labourers Vayalagam Village

### Conoweeder use in Aliyar Sub Basin

Usage of weeder is one of the critical step in SRI  
Weeders should be used at 10 days interval from the transplanting day.

3 labourers are enough to weed one acre

Weeds are trampled and on decay the nutrients are ploughed back to the soil

Soil is frequently disturbed which has beneficial physico chemical-biological results in soil.

Root pruning triggers the tillering that results in bursting out of tillers.

Water level should be properly monitored for usage of weeders

The leftout weeds should be handweeded.

#### Farmers say



First raised ASD16 and adopted SRI and on following the response of the crop I have taken up ADT45 additionally. I recognise the the effect of weeder as an intercultivator and I realized savings in weeding

**K. Sriramulu**  
Thambipatti Village  
Arjunanadhi sub basin

I have used weeder for two times for my SRI paddy and I was surprised to see 30 to 35 tillers in my SRI crop. Normally 10 to 12 tillers will be found in my rice crop. The root growth is good

**S. Mariappan**  
Mamsapuram Village  
Arjunanadhi sub basin



## Conoweedeuse in Aliyar Sub Basin



Operation of cono weeder in progress -  
Anaimalai Village



Sri - Paddy in tillering phase -  
Anaimalai Village

### Good SRI Crop in Arjunanadhi Sub Basin

- Exposure visits to successful farmers and trainings.
- Timely supply of key inputs & implements.
- Simultaneous expansion of Demo & Impact area through
  - Tilling mela
  - Unique demarcation by SRI flags
  - Popularizing cost effective, higher tilling and increased productivity of SRI through IEC activities
  - Harvest mela
- Feedback, fine tuning and documentation of SRI adoption in IAMWARM subbasins through Expert Committee.
- A special drive to push the SRI with a constant pursuit has been given with TN IAMWARM project as a base.
- To populative SRI, the following holistic way was adopted in this project.

### Good SRI Crop in Arjunanadhi Sub Basin



Easier handling of cono weeder by Farm women - Mullikulam Village



SRI farmer amazed with Maximum number of tillers - Kammappatti Village

### Recommended water management for SRI

- In Tamil Nadu, 3 million wells, that heavily utilize the available surface water (17.5 BCM) and groundwater (15.3 BCM). Hence, there is a need for water conservation.
- Agriculture is the single largest consumer of water in the state, using 75% of the state's water and rice is the principal food crop of the state and majority of area is under irrigation.
- It has been found that in the most intensively cropped areas under rice, where groundwater is often used for irrigation, water tables have been falling at the alarming rate of one meter per year or more!
- Water management is one of the critical steps in SRI and provision of aerobic environment in rice fields is the core point in SRI
- Irrigate to 2.5 cm depth (after hairline crack formation up to panicle initiation and after that after disappearance of ponded water).
- 40 50 % water saving from planting to harvest

### Farmers experience



I am practicing SRI for the first time, and I could increase the cropped area by 40 per cent with the same quantity of water and I strongly feel that it is due to adoption of SRI

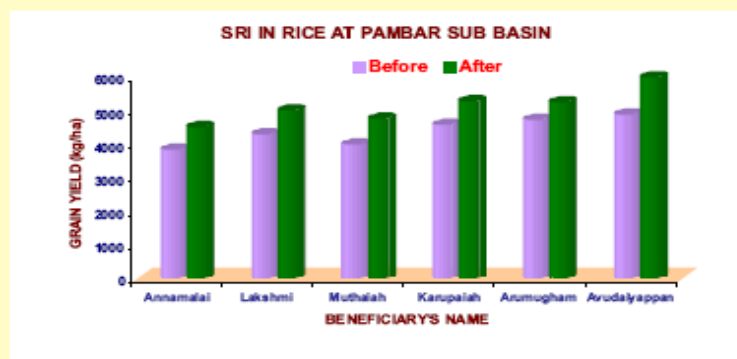
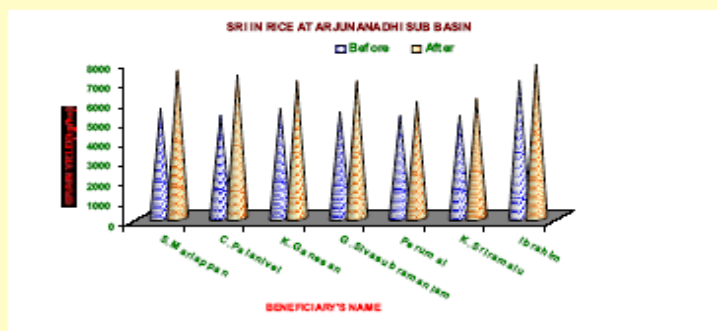
**Mrs. Vijayalakshmi**  
Vikravandi Village  
Varahanadhi Sub basin

### Recommended water management for SRI



## Harvesting of SRI Rice

SRI has been successful in yield increase and this has been recognized very well by the farmers. The increase in yield in the sample farmers was 40 to 80 cent.



## SRI Harvest Details



Name of the Farmer & Sub-basin	Paddy (Kg/ha)		
	SRI Yield (Variety)	Conventional	% of Increase
Th. T. Renganathan, Aliyar	6475 (White Poondi)	4700	38
Th. C. Palanivel, Arjunanadhi	7350 (TRY 1)	5250	40
Th. K. Shanmugam, Manimuthar	8750 ADT 39	4750	84
Th. C. Ravi, Upper Vellar	9750 ADT 39	6560	49
Tmt. Vijayalaxmi, Varahanadhi	7636 (BPT 5204)	4688	63



**Hon'ble Minister for Agriculture,  
inspecting SRI field in Upper Vellar**

Hon'ble Minister for Agriculture inspected  
the SRI field at Thumbal Village in  
Upper Vellar Sub Basins.

He Examed the tillers are  
personally cootes the fillows.

On seeing the performance of good SRI Corp.  
He was announced that steps would be taken for  
Bringing 7 ½ under lakh has Sri in the State during  
2008-09 in the floor of the Assembly.

**Hon'ble Minister for Agriculture,  
inspecting SRI field in Upper Vellar**



Date 31.12.2007 Hon'ble Minister for  
Agriculture inspecting use of Cono  
Weeder - Thumbal Village



In the presence of Hon'ble Minister for Agriculture -  
Thumbal Village

## Harvesting of SRI Rice



## SWOT Analysis on SRI Cultivation

### Strengths

- ♦ Reduced seed rate (3 kg/Ha), nursery area (40m<sup>2</sup>) and seedling duration (14 days)
- ♦ Production of vigorous seedlings thereby increased tillers.
- ♦ Use of Cono Weeder induces soil microbial activity and rhizosphere aeration besides increasing soil organic matter and reduces labour.
- ♦ Increase in yield by - 40%
- ♦ Increase in net income by 100%

### Weakness

- ♦ Skill is necessary for raising mat nursery. Planting single seedling in squares and cono weeder usage.
- ♦ Higher perfection in leveling is required for planting and water management.
- ♦ Farmer's apprehension on single seedling transplanted field.
- ♦ Non-availability essential tools for square transplanting and weeding at appropriate time.
- ♦ Lack of updated knowledge amongst extension staff.

### Opportunities

- ♦ Farmers' interest shows tipping point.
- ♦ Scope for increasing TN rice production by 1.2 million tonnes.
- ♦ Increase in net income by Rs. 12719/ha.
- ♦ Development of mechanical transplanted.

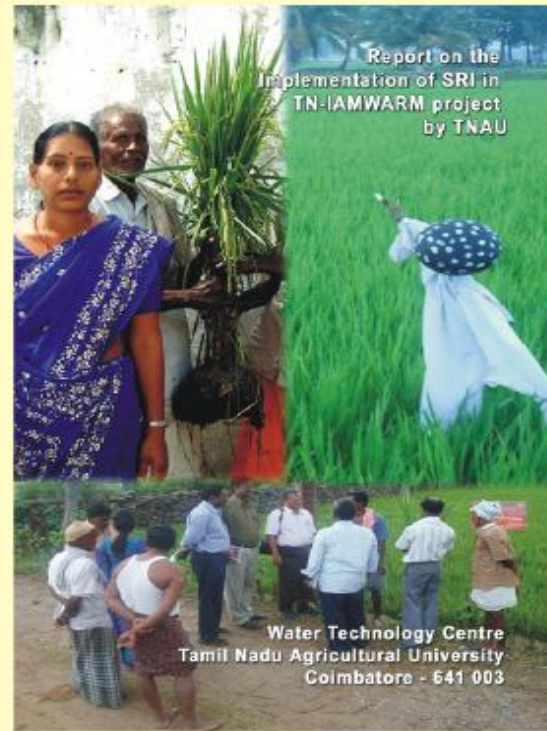
### Threats

- ♦ Washing out by heavy rains
- ♦ Farmers under canal irrigation cannot follow Alternate wetting & drying
- ♦ Inadequate knowledge of extension staff so mere line planting or mechanical planting is called SRI
- ♦ Availability of marker, weeder too late (after 14 days)

**Hon'ble Minister for Housing Board  
inspecting SRI field  
in Alambucherry**



**SRI Monitoring  
committee report**



## SRI - EXPOSURE VISITS



Manimuthar Sub Basin



South Vellar Sub Basin

## SRI - EXPOSURE VISITS

- ♦ Exposure visits are fundamental tools to popularize any new method of production and its necessity get amplified in the agriculture in India due to its inherent characters.
- ♦ The farmers gets first hand information and imbibes the benefits by seeing the crop/technology.
- ♦ Interaction with the lead farmers helps the farmers to know about the practical problems and ways to solve it.

### Farmers say

At Balagudipatti farm, I have seen the SRI paddy crop for the first time and I don't know how only one paddy seedling could put so much number of tillers. Its just amazing.

**Mr. M.Lateef**

Melayur, Village  
Kottakaraiyar sub basin

At Nadukuppam village, we saw the SRI paddy crop and had first hand information on square planting and cono weeding. On seeing this more than 30 farmers in our village adopted SRI.

**Rajendran,**

Desur Village,  
Varahanadhi Sub Basin

## TNAU SRI Publicity in leading Dailies

**உலக வங்கி நிதியுதவியுடன்  
நீர்வள நிலவளத் திட்டம்  
TN - IAMWARM**  
தமிழ்நாடு வேளாண்மைப் பல்கலைக்கழகம்  
தெல் சாளுபடியில் ஒரு புரட்சி திருந்திய தெல் சாளுபடி  
கோட்பாடுகள்



**பயன்கள்**



**அதிக ஹாவி**





பான திறமையை 40 - 50 சதவீதம் குறைவு	சாகு - செலவு சாட்டுகிறது	சுமார் 32,570	42,926
	நீர் திறமை	9,149	23,868

தெல் சாளுபடியில் நீர் உபயோகத்தை குறைப்பதால்  
நாட்டின் உணவு உற்பத்தியைப் பெருக்குவோம்

முதல்வர் அலுவலர்  
நீர்வள நிலவளத் திட்டம், நீர் ஹப் சலவை,  
தமிழ்நாடு வேளாண்மைப் பல்கலைக்கழகம்,  
கோட்பாட்டுத் - 641 003.

திட்டம் இயக்குனர், நீர்வள நிலவளத் திட்டம்,  
அமைச்சர் அலுவலர் இயக்ககம்,  
கோட்பாட்டுத் துறைமுக வளாகம்,  
சென்சூசியல், சென்னை - 600 005.

Dina Thanthi 27.12.07  
Indian Express & 28.12.07  
Murasoli  
Dinakaran 31.12.07

## Pongal Greetings to the beneficiaries

**நீர்வள நிலவளத் திட்டம்  
உழவர் திருநாள் வாழ்த்து**

சென்னை, 27.12.2007

உலக வங்கி நிதியுதவியுடன் தமிழ்நாடு வேளாண்மைப் பல்கலைக்கழகம்  
நீர்வள நிலவளத் திட்டம் தமிழ்நாடு வேளாண்மைப் பல்கலைக்கழகத்தில்  
தான் உருவாகி வருகிறது. இந்த வேளாண்மைப் பல்கலைக்கழகம்  
உழவர் பெருங்களை அனைத்துக்கும் உழவர் திருநாள்  
வாழ்த்துக்களை வழங்கித் தரும்.

முதல்வர் அலுவலர், சிவகாமங்கல்  
நீர்வள நிலவளத் திட்டம்  
தமிழ்நாடு வேளாண்மைப் பல்கலைக்கழகம்  
கோட்பாட்டுத் - 641 003.

2008

தென் சாளுபடியில் நீர் உபயோகத்தை குறைப்பதால்  
நாட்டின் உணவு உற்பத்தியைப் பெருக்குவோம்

**திருந்திய தெல் சாளுபடி  
கோட்பாடுகளும் பயன்களும்**



கிராமப்புற  
பெருங்குடி குடியேற்றம் - 40 ச.கி.  
செலவு குறைவு - 5 - 7 கோடி  
சாகு வகை - 14 - 15 கோடி

சென்னைக்குள் உபயோகிக்கும்  
பான திறமை - 40 சதவீதம்  
பான வளர்சிதைப்பாடு  
குறைவு - 15 சதவீதம்

நீர்வள நிலவளம்  
அமைச்சர் அலுவலர்  
40 - 50 சதவீதம் துறைமுகம்

அதிக ஹாவி, அமைச்சர் அலுவலர் - அதிக ஹாவி

### SRI in IAMWARM on Wheels

- ❖ To popularize the IAMWARM project among farmers, a propaganda van was designed.
- ❖ Vans are provided one for each I phase subbasins.
- ❖ Vans went on a mission from 4<sup>th</sup> February to 18<sup>th</sup> February 2008
- ❖ Van has personnel from all the line departments and farmers queries were answered then and there.
- ❖ SRI was one of the main focus of the Vans.
- ❖ Short films on SRI method was displayed during night meetings and it was welcomed by farmers.
- ❖ Pongal greetings carrying the IAMWARM messages was sent to all the beneficiary farmers.

### SRI in IAMWARM on Wheels



## SYSTEM OF RICE INTENSIFICATION OPTIMISING PRODUCTION WITH FEWER INPUTS

News Articles: Business Line - dt. 04.04.2008

The System of Rice Intensification is an alternative to the traditional way of flooded rice cultivation and is showing promise in addressing the problems of water scarcity, high energy usage and environmental degradation.



The SRI method involves synergy of five important farm management techniques.

**Vibhu Nayar**  
**V. K. Ravichandran**

The global community is faced with two challenges this millennium; one, the increased scarcity of water as seen from the droughts in Australia, parts of Asia and Europe and, two, the demand-supply mismatch in the availability of cereals such as rice, exacerbated by galloping prices. This is all the more critical in Asia, where 90 per cent of the world's rice is grown and consumed.

### World Development Indicators

The availability and efficient utilisation of fresh water resource is a major constraint on agricultural growth.

The Table illustrates the gap between the natural resource availability and utilisation levels in Asia. On the one hand, Asia is constrained by resource gap and, on the other, socio-cultural practices encourage water guzzling crops.

In India, rice alone accounts for 85 per cent of the water consumed in agriculture. It is estimated that by 2025, an area of 17mha under rice in Asia cultivation will face water scarcity, concomitant with global shortfall in production of over 200 million tonnes.

Some of these trends are manifesting in India as well, with stagnating yields and decreasing coverage of rice from 44.6 mha in 2000-01 to 41.9 mha in 2004-05. An IFPRI report also indicates that there has been a 21 per cent drop in cereal consumption over the last 25 years. Since rice is such a crucial crop for Asia, the challenge is to improve its water utilisation efficiency and productivity. System of Rice Intensification (SRI) is an emerging solution to these challenges. This method is an alternative to the traditional way of flooded rice cultivation and is showing promise in addressing the problems of water scarcity, high energy usage (40 per cent saving) and environmental degradation.

SRI is a synergy of five important management techniques. It encompasses careful transplanting of 14-day young seedlings at wider spacing (23x23cm) on a square with only one seedling per hill, water management that keeps the soil moist but not continuously flooded — alternate wetting and drying, mechanical weeding through rotary weeder before canopy closure and higher use of organic compost as fertiliser.

### Promising results

This SRI technique is also being promoted in Tamil Nadu under the TN-IAMWARM Project. A multi-disciplinary project of the Government of Tamil Nadu, assisted by the World Bank, TN-IAMWARM aims to improve water productivity and income of the farmers.

The SRI mission is showing promising results for all rice varieties (local or improved) and hybrids. Conventional wisdom suggests that higher yields in rice come with high investments on seed, irrigation, high doses of fertilisers and pesticides. Contrary to this view, the SRI produces higher yields (40-80 per cent) with less seed (85 per cent) and economised water use (32 per cent saving)

### Increased productivity

The introduction of SRI over 5,000 ha in the very first year (with plans for two lakhs ha) has brought visible changes in the agrarian context. Studies carried out by TNAU in 100 locations have indicated 32 per cent water savings, which is corroborated by farmers such as Mrs Vijayalakshmi of Villupuram, who could increase her cropped area by 40 per cent with the same quantity of water.

Mr K. Shanmugam raised SRI paddy in Mahibalanpatti of Manimuthar sub-basin in the dry Sivaganga district, harvested 8,750 kg/ha compared to 4,750 kg/ha in the previous year by using ADT 39 variety (84 per cent increase). Around 49 per cent yield increase was also observed by Mr C. Ravi of Pallathathanur of Salem district Upper Vellar sub-basin) where the availability of water is always assured. He realised a yield of 9,633 kg/ha using the SRI method compared to 6,483 kg/ha.

In all these instances, the seed rate was just 8 kg/ha against the conventional practice of 30-60 kg/ha and fertiliser and pesticides application was much more judicious. Field studies indicate that the resultant decrease in inputs such as seed and chemicals, combined with improved yields, leads to an average increase in net income by Rs 12,719/ha, a 100 per cent increase over the conventional cultivation method.

It is estimated that if the SRI is adopted even on just 25 per cent the irrigated rice area in India (5.3 mha), there would be a saving of paddy seed worth Rs 500 crore. The increase in production because of increased yield (40 per cent) and better water productivity (32 per cent water saving) bringing more area under irrigated rice cultivation is estimated to be about five million tonnes — enough foodgrains for about four million families for a year under the public distribution system.

The expected increase in net income would be about Rs 6,741 crore. Assuming that 50 per cent of the irrigation is groundwater-based, SRI would save energy (40 per cent) equal to 632.61 million kWh which means a savings of Rs 253 crore, as well as 10,000 million cu.m of irreplaceable groundwater for future generations.

This is apart from unaccounted benefits such as health, nutrition and general improvement in the rural economy.

### Change in mindset

Up-scaling the evident benefits of SRI across the country would require a change in the mindset of farmers, who need exposure to best practices, technology transfer through cluster approach, skill upgradation of labour, adequate and timely availability of simple mechanical implements such as rolling markers and rotary weeders and, most important, regulated water supply.

The TN-IAMWARM project has definitely made a significant contribution in making farmers realise that paddy cultivation through SRI is the way forward to enhance water productivity, improve farm income and achieve better livelihood. It is now opportune for the rest of Asia to examine, experiment and formally adapt it.



**Online edition of  
India's National Newspaper,  
Wednesday,  
Jan 02, 2008**

**20% of paddy area under SRI Scheme**  
Special Correspondent  
Photo: E. Lakshmi Norayanan

**Salem:** A healthy 20 per cent of the State's total paddy coverage area of 21.5 lakh hectares has been brought under the System Rice Intensification (SRI) programme, Agricultural Minister Veerapandi S. Arumuga said on Monday. He was speaking to reporters after eliciting farmers' views on the advantages of the scheme, being introduced in the remote Thoubal Village falling under the Upper Vellaru River Water and Land Development Programme of the Tamil Nadu Agricultural University in Salem District.

He said coverage under the scheme during 2006-2007, the first year of experimentation, was a mere 4,638 hectares. Next year, it was increased to 11,320 hectares. And now, a staggering 4.3 lakh hectares had been brought under the scheme. The increase would also help to increase food production.

If agriculturists came forward to totally adopt this technology, which had been revolutionizing paddy farming, the entire rice needs of Tamil Nadu could be met. "We need not outsource it," he said. The food production target for this year was fixed at 95 lakh tonnes.

To forge a one-to-one contact with the stakeholders, the Agriculture Department had been revamped from a three-tier system to two-tier, he said.