NPM-SRI in Tank Irrigation Systems [1]

Managing water resources is the key to sustaining droughts that are going to become more frequent than ever due to climate change. System of Rice Intensification (SRI) is taking roots as one of the options for sustaining rice productivity with less water and less inputs.

Mahabubnagar is one of the districts in Andhra Pradesh with less and uneven distribution of rainfall. SRI is normally taken up under bore well irrigation and tanks in larger parts of this district. Filling up of tanks is erratic in the district in recent days and whether to take up a crop with the available water is always a dicey question. Farmers in a small Tank in Nagireddypalli village [2] worrying whether the tank-water would be sufficient to sustain normal rice crop came forward to take up SRI in 2007 Rabi. Their interest is to see if they can have the entire crop safely as water recedes fast from the tank. Farmers have also agreed to do SRI completely without using any chemical pesticides using NPM practices.

The program was initiated under the World Bank and Government of Andhra Pradesh supported AP Drought Adaptation Initiative (APDAI – *Karuvu kavacham)* implemented by the federation of SHGs (MMS) and facilitated by WASSAN..

All the 15 farmers have successfully grown rice under SRI in nearly 7ac without using any pesticides. The program has provided some incentive for incorporating *pongamia* leaves during land preparation as green manure. They did weeding by using *mandava* weeders two to three times. In only one plot there was an incidence of stem borer that the farmer can easily control with NPM methods. There is almost zero cost on pesticides for all the farmers. The labor for weeding was mostly their own. There are about 25 to 35 tillers per hill across the tank ayacut. The most amazing thing is the very high percentage of effective tillers in the range of above 90%.

The *Neerati* who has the responsibility of opening the Tank sluice was oriented on irrigation scheduling. He has opened the sluice 13 times during the entire crop period, thus could manage the entire crop with 13 irrigations. A small leak in the tank sluice was sufficient during rest of the period. Farmers in the tank above the Nagireddipalli tank are envious, as their regular paddy crop did not perform as good. The number of tillers was below 15 and they had to spray chemical pesticides two or three times.

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[1] Janaki Ram and Bhagya Lakshmi, WASSAN;

[2] Bomraspet Mandal of Mahabubnagar district, Andhra Pradesh

A field day was organized on 25th April, 2008 to share the farmers' experiences to a wider audience. Farmers from Pangal Mandal who have taken up SRI under Tank irrigation also participated in the field day to share their experiences. Farmers from other tanks within the district and from other districts, scientists from ANGRAU, Directorate of Rice Research, CRIDA, WWF-ICRISAT, officers from the Agriculture Department and CADA participated in the field day. Dr. Giri Rao from ANGRAU and Sri. Kishan Das from Commissionerate, Rural Development presided over.

Crop-cutting assessment was carried out by a sub-group led by a scientist from DRR, consisting of farmers and officials. Physical and economic performance of NPM-SRI as compared to conventional paddy was assessed. The data from crop-cutting was compiled and shared with all. The modalities of how to take up NPM-SRI in several Tank Irrigation Systems in Mahabubnagar and other districts was also discussed.

The parameters of number of tillers, percentage of effective tillers, number of grains per panicle, grain weight etc, are measured. The data was summarized in the plenary meeting by the scientists.

SRI has quite out performed the normal method of cultivation in several parameters and more importantly in increasing yields and saving water.

Summary of data for SRI and Non-SRI plots generated through crop cutting on 25th April

Parameter	SRI Paddy Plots					Normal Paddy plots		
	Plot-1	Plot-IV	Plot -0	Plot - III	Mean	Plot-1	Plot 11	Mean
No of Tillers/ m2	336	425	437	391	**397.25**	393	486	**439.5**
No of Effective tillers /M2	329	418	431	378	**389**	342	417	**379.5**
(%) of effective tillers	98	98	99	96.8	**97.95**	79	88	**83.5**
Range of grains per panicle	143-226	94-165	250-315	215	**280**			
Grain Yield (Kg /Acre)	2568	2784	3108	2525	**2746.25**	2396	1488	**1942**
Grain Yield (Bags /Acre)	**34**	**37**	**41**	**34**	**36.5**	**19**	**20**	**19.5**
(%) Increase over Normal	**32.23**	**43.36**	**60.04**	**30.02**	**41.41**			

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Kharif 2008

Based on Nagireddypalli experience SRI in rabi, farmers of the same tank continued SRI in *Kharif* 2008. SRI was extended to 34 acres under bore wells and the tank in Kharif 2008. *Azolla* released in the SRI fields during the Kharif season. The photograph provides a glimpse of the matty azolla spread. It was incorporated in to the SRI fields while weeding. The crop is very healthy and is just being harvested. Farmers attribute the improved health of the SRI crop this season in the tank to azolla and the root growth that was incorporated in the previous rabi season.

Looking at the experiences of Nagireddipalli tanks, farmers of the adjoining village – 'Kottur' came forward to go for SRI in tank ayacut during the Kharif 2008. This is a larger tank with a command of 200 acres. It was left fallow for the last 3 years because of insufficient water in the tank to cultivate normal paddy. Faced with a situation of low water level in the tank in July and considering the uncertainty of subsequent rainfall, the farmers looked at SRI as an opportunity. In *Kharif* 2008, 72 farmers have taken up SRI in this larger tank in 107acres. The season is in progress and a detailed documentation would be available by December, 2009.

SRI in this block of land is spreading slowly under borewells and in tank systems.

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