

The SRI Model Villages of Warangal

“I was not confident when Ilaiah and Balaiah, (Village-level SRI motivators from CROPS organization) suggested that I adopt SRI in at least 1 acre of the total 3 acres in my paddy fields; How can 3 kg of seeds, less water and less fertilizer give me good yields? I argued with them. Today when I look at my SRI paddy crops, and compare it to the conventional crop in my adjacent field, all my fears are put to rest and I feel happy and inspired,” said the 50-year-old farmer Balanarsaiah to Dr. V. V. Sadamate, Adviser (Agriculture) to Planning Commission, Govt. of India, New Delhi, who was in Hyderabad on the 1st of April 2009, on a 1-day visit to the SRI villages of Warangal district. Balanarsaiah is unaware and unperturbed by the cadre and importance of the man he is speaking to; who, hope, based on his field visits and factual data and information gathered is going to play a positive role in influencing policy decisions concerning scaling of SRI at national level



SRI farmer Balanarsaiah explaining to Dr. V.V. Sadamate (behind in white cap) on his initial fear on young seedlings

When Biksham Gujja, Team leader of ICRISAT-WWF project invited Dr. V.V. Sadamate, as part of ICRISAT-WWF mandate to work towards up scaling of SRI in India, he asked him to come to Delhi but Biksham Gujja said: “The real wave and the change in yields felt by SRI rice-growing farmers cannot be discussed in closed rooms but one has to meet and talk to the farmer in his field to believe in the results and convictions of the huge number of people who have been promoting SRI in India for more than a decade now.”

The data collected on the yield parameters revealed that the yields from SRI fields in Warangal district resulted on an average of about 3.1 t/ acre whereas the average yields of conventional fields remained at 2.4 t /acre. The reasons for this tremendous improvement was attributed to more number of tillers per hill (above 40), improved panicle length (above 30 cm) and number of filled grains per panicle (above 200). Farmer Balanarsaiah claimed, like many others, that there is about 2/3 saving in water in his 1 acre of SRI field when compared to his 1 acre of conventional field. “This means I can use the water required for 1 acre in conventional to 2 acres in SRI fields.” he added. If these findings and adoption are matched at district and state levels in the country, India with its farm-based approaches based on principles of ‘more with less’ can bring a sea change in improving the lives and livelihoods of millions of farmers while reducing the ecological footprint on planet earth without compromising on the food security.

At the village level, the efforts of the village-level SRI coordinators and motivators from Centre for Rural Operational Programmes Society's (CROPS) are commendable in up scaling of SRI among rice-growing farmers; from mere 13 farmers in the year 2007 the district of Warangal now boasts of about 528 farmers (in 431 acres) in Rabi 2007-08. Almost all the rice-growing farmers in these villages are now following SRI methods. Not very distant, it seems, these villages will be baptized as the SRI Villages in the official records. Indeed laudable and appreciable are the war footing efforts of CROPS in promoting SRI in the Bachannapeta, Maddor and Jangaon mandals of Warangal district; the drought hit Telengana region of Andhra Pradesh.

The following table presents the details of progress of SRI during 2007 to 2009:

Table 2: Extent of SRI farmers in Warangal district under the project

S. No	Village Name	Name of Mandal	Year	Season	No. of Farmers	Area in Acres
1	Katkur	Bachannapet	2007-08	Rabi	68	44
2	Bonakollur	"	"	"	62	42
	Total				128	86
1	Katkur	"	2008	Kharif	105	78
2	Bonakollur	"	"	"	38	32
	Total				143	110
1	Katkur	"	2008-09	Rabi	313	266
2	Bonakollur	"	"	"	105	85
3	Chinnaramancharla	"	"	"	85	65
	Total				503	416
1	Pasaramadla	Jangaon	"	"	3	5
2	Obulakeshapur	"	"	"	2	1
3	Pedda Ramancharla	Jangaon	2008-09	Rabi	3	1.5
4	Peddapahad	"	"	"	2	1
5	Gopirajpally	"	"	"	1	1.5
	Total				11	9
1	Doolimitta	Maddor	2008-09	Rabi	21	10
2	Lakkapally	"	"	"	7	3.5
3	Dharmaram	"	"	"	2	1.5
4	Ladnoor	"	"	"	4	2
5	Marrimamula	"	"	"	3	2
	Total				37	19

In the Chinnaramcherla village about 150 small and marginal farmers are motivated to adopt SRI method of paddy cultivation while in another five villages of Jangaon mandal, up scaling measures have been initiated to motivate another 100 -150 farmers to adopt SRI method of paddy cultivation.

The other benefits experienced by the farmers can be stated as below:

- There is a tremendous reduction in seed rate. While 30 kg of seeds are used for an acre in conventional method, only 2kg is used in SRI.
- Water use has also been reduced to a greater extent. On an average, 30-40 % of the water used in conventional method is only used in SRI method.
- There has been almost no incident of pests and diseases including rat menace in SRI fields.
- Maturity of the crop is sooner (about 15 days) than the conventional method.
- Labour cost for field preparation, nursery management and weed control has been reduced due to less number of labourers involved.
- Fodder production has been improved 50% more than the conventional method.
- Better soil aeration and sun light penetration due to wider spacing result in better root development and photosynthesis in leaves.
- No lodging of crops due to stronger root growth.
- Drudgery of women has been hugely reduced as they can easily perform activities like transplanting, weeding etc in SRI fields.
- There was a great saving in cost of cultivation due to involvement of family labourers, minimum amount of external inputs and power utilisation.



V.V. Sadamate interacting with district agriculture officers

Dr. Sadamate during his 1-day visit met and interacted with SRI farmers in their respective fields and in groups, questioned the district agriculture officers and model farmers (*Adarsha Raitu*) on their stake and involvement in SRI promotion both individually and in collaboration with CROPS, the local NGO. During his interactions with farmers and staff from Dept. of Agriculture he suggested some notable points which are:

1. SRI technology is moving fast and is doing extremely well.
2. Organizations like ICRISAT-WWF through their local NGO partner CROPS are putting commendable efforts in promoting and up scaling SRI. But to achieve the same at district and state level, Department of Agriculture has to come in a big way.
3. The Department of Agriculture has to take up the task of making the weeders and markers available to farmers and modify them based on local requirements.
4. For promoting organic manure, basic soil testing has to be done.
5. State, district and mandal level Dept. of Agriculture, Krishi Vigyan Kendra (KVK), Agricultural Technology Management Agency (ATMA) should support and build the capacity of farmers by adopting methods of trainings and exposure visits. ATMA has the provision of spending 20% of the fund for exposure visits and State Research and Extension Plan (SREP) under ATMA reflects the need for SRI.
6. Promote scientists farmers interactions and scientist should make weekly diagnostic field visits.
7. The Model Farmers (*Adarsha Raitu*) in the state of Andhra Pradesh must further be involved and trained for promotion and scaling of SRI.



Biksham Guja explaining to Dr. V.V. Sadamate the reasons for the successful operations of the locally modified weeders

Appreciating the efforts of ICRISAT-WWF he said: “Organizations like ICRISAT-WWF through its partners like CROPS can support and scale SRI to maximum 20 to 30 villages but to up scale it at state and national level there has to be a convergence of efforts among government departments, NGO’s and other stakeholders. We cannot operate individually, and it is the responsibility of the Joint Director (Agriculture) to ensure the convergence as promotion of SRI needs integrated efforts. All agencies should move together to reflect the impact at national level.”



Dignitaries from WASSAN, CRIDA, DRR, ANGRAU and Dept of Agriculture, ICRISAT-WWF, CROPS sharing the floor with farmers and media persons.

While talking to media he added: “The SRI crop stand is fantastic. SRI technology is spreading and the farmers are getting an increase of 1.5 tonnes in hectare which in itself is a clear indication of the strength of SRI methods in rice cultivation. SRI can solve the National Food Security Problem.” He pointed out that, “Planning Commission is serious and want to spread SRI throughout the rice-growing states of India. We have money in NFSM and other programmes like ATMA. Next 2 - 3 months, we will have a policy meet at Delhi where we will call various stakeholders to discuss on concerns, research, mechanical issues of this method.”

Indeed as rightly said by Dr. V.V Sadamate, “there is lot of money and it has to be properly utilized.” But SRI practioners and promoters opine that the “lot of money” under National Food Security Mission, ATMA, KVK’s needs to be realistically better channelized and spent on SRI promotion rather than merely limiting it to demonstration plots; matter-of-fact, the demonstrations plots hardly exist at village or district levels; They recommend in unison that its time the

NFSM forms a SRI Mission committee in partnership with various stakeholders for up scaling SRI in India.

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It is important to note here the relentless efforts and meticulous planning by Dr. V. Vinod Goud, Project Coordinator ICRISAT-WWF responsible for the making of the SRI model villages in Warangal district of Andhra Pradesh; today these villages witness a huge upsurge of farmers and other visitors both from the neighboring villages and other states on a daily basis. So, when you visit the SRI villages in Warangal district do not forget to sign in the visitor's register maintained by the CROPS organization as you will be a signatory to the SRI movement in India.

SRI Farmer Chintala Balaiah

My name is **Chintala Balaiah**, aged 48 years and has been in the agriculture for the last 20 years. Agriculture is my primary occupation though I have studied up to 10th class. I belong to Katkur village in Warangal district of Andhra Pradesh. I have 8 acres of land in which I grow paddy in 2-3 acres, while in the remaining land I usually grow cotton and red gram. For irrigation I have one bore well and an open well. Since the beginning I have been cultivating paddy in conventional method. In general, I used to spend significant amount of money on chemical fertilizers and pesticides apart from seeds and field operations. Usually the yield in the conventional was about 2.5 to 3.0 t / acre.

Due to the uncertain rains and corresponding lesser amount of water availability in the area for the past several years, we, the farmers are facing difficulties in cultivating paddy and some of them are losing interest in growing the same. In such prevailing situation one day I heard from CROPS organization about SRI method of paddy cultivation. In the meeting when the organization has informed us about the SRI method and its benefits like less water consumption, less seed, less input cost and relatively more yield, I could not believe in the beginning. Especially the concept of relatively less water consumption - They said this method requires only 2/3 as much water compared to conventional method - is more doubtful because, for the generations together we the farming community is in the belief that, rice grows best in standing water. When we expressed the

same, the organization CROPS explained us the background and success of the method. Besides assuring us to support with continuous trainings and follow up, the organization has also promised us to compensate if in case of relatively less yield in comparison with the conventional method, which motivated me to follow SRI method. More over incessant decreasing of water availability in my land was also major cause that motivated me to take up the method.

Initially interested farmers were identified in the village and they were formed in to groups; later one enthusiastic and committed individual was identified as a village level motivator, who received intensive training on SRI method of paddy cultivation. Apart from receiving the continuous support from this village level motivator, I have received significant support from the organization in terms of training programs, farmers field schools, follow up visits, exposure visits, literature, and inputs like silt, farm yard manure, neem powder, rotary weeders and markers. So far I have practiced in two seasons (Rabi and Khari) and during both seasons I practiced SRI method in 1 acre land and the seed variety tried was IR 64. While during the first season the yield was 4.1 t / acre, in the second season it was 4.5 t/ acre. With the help of CROPS, I have followed the following practices in SRI:

- Initially I have thoroughly prepared nursery field and applied organic manure. Then nursery field was converted into raised bed by keeping four sides tight with paddy straw. Later sprouted seeds were broadcasted.
- For seed preparation, I have taken 2 kgs of seed and soak them in water for 12 hours, later water was drained and transferred wet seed to a gunny bag and left for 24 hours.
- Once seed was broadcasted, I had thinly spread the well decomposed FYM over the sown seed and covered the bed with paddy straw, because I have told that seeds should not be directly exposed to sun.
- For two days watering was done and once when the seeds germinated paddy straw was removed.
- Meanwhile, main field was prepared thoroughly. Bunding, leveling and marking with marker were completed one day before the transplantation
- While transplanting single seedlings were taken out carefully and planted them along with seed, root system and soil.
- After transplantation fields were irrigated with less amount of water.
- Ten days after planting, first weeding was done with the weeder later the second and third weeding was done with 10 days interval.
- During the weeding measures were taken to incorporated the weeds in to the soil
- Irrigation was given only to wet the soil with regular wetting and drying

Advantages of SRI method of paddy cultivation:

When compared with conventional method, I have perceived the following benefits from SRI method of paddy cultivation:

- In conventional method I have used 25 kg of seeds, where as in this method I have used about 2 kg of seeds.
- Irrigation is given only to wet the soil, so I could save the significant amount of water which was diverted to other crops and conventional paddy fields as well.
- During both season I have not experienced any incidence of pests and disease to my SRI fields.
- Relatively my plants developed strong root system.
- In this method plants were grown well and each plant gave us 60-100 tillers and each tiller bears good number of grains
- Input costs were decreased due to saving on seeds, labour costs, chemical fertilizers and pesticides.
- Relatively my netincome was increased due to increased yield and decreased input cost.
- Relatively I have got more fodder than the conventional method.
- Nursery management has become easy since small quantity is required

Constraints:

Initially women labour were bit resistant to transplant single seedling and troubled us to some extent, later they were given training on the same, which helped us to smoothly sail during the second time. During the first time we also faced bit difficulty in preparing raised bed. Initially this method needed more labor for transplanting and weeding, but later during the second season it became easy as the labourers were trained and motivated to apply the learnt skills. In the second season relatively labour costs were also reduced. During the first time (Rabi) we faced difficulty in running the weeder, which resulted in relatively lesser yield. But in the second (Kharif) season we got acquaintance with running weeder. During the initial days I was much worried due to derisive comments from fellow farmers - who did not adopt SRI - about single seedlings in infant stage, but the continuous support from the organization helped me to go further with out any worry in mind.

Lessons learnt:

With my experience I understood that if SRI practices like bed raising, timely planting, perfect leveling of main field are learned and applied perfectly then yield can be doubled than the conventional method. I also understood that this method requires mote attention than the conventional method. If labourers have given training then they can perform well during transplantation and weeding, but some times it is difficult for us to get more number of labour. Weeding is labour sensitive but if ploughing is done to shallow levels then weeding becomes relatively easy. In this method we need relatively lesser amount of water than the conventional method, so under bore wells, SRI can be taken with out any difficulty.

Suggestions:

Though the SRI method is most efficient method in growing paddy, farmers are not aware of the same. So, in order to promote the method, farming community must be sensitized and awareness must be created. There are few constraints in adopting the method as I mentioned above. If the constraints like labour intensive weeder running, unavailable trained labour, difficulty in acquiring the necessary skills for marking, transplanting etc, higher labour costs in the initial years are addressed by the way of supplying motorized weeders, trainings to farmers and labourers, assurance from the concerned agencies about assured technical support, then large number of farmers will come forward to adopt the method.

Comparative study:

By following the SRI method and conventional method simultaneously I could perceive the following differences between the two methods in terms of management practices, net returns and incurred expenses:

Particulars	Conventional Method	SRI Method
Variety	IR 64	IR 64
Duration	120 Days	110 Days
Seed	30 kg	2 kg
Age of seedlings	30 days	9-10 days
Fertilizers	DAP+Urea+MoP	FYM
Pesticides	Ekalux Granules	Nil
Weed Management	Manual	Rotary Weeder

Cost of cultivation and Income per acre (Rs.)

Particulars	Conventional Method	SRI Method
Ploughing	2,500	1,500
Seed	600	60
Main field leveling	300	200
Transplantation	600	500
Fertilizers	1300	400 (For organic manure)
Pesticides	300	Nil (No pest & disease incidence)
Weeding	500	500
Harvesting & thrashing	1500	1500
Total cost of cultivation	7,600	4,660
Yield (kg/acre)	3,000	4,500
Gross Income (9.50/kg)	28,500	42,750

Net Income	20,900.00	38,090.00
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“After benefiting from this method I have decided to grow paddy following SRI method at present and in future also. At the same time I am also interested to promote this method among farming community at my best possible way”