

## SRI in Bihar:

# From one to 350,000

Farmers in Bihar were initially sceptical when they heard about

the System of Rice Intensification, five years ago. Only one farmer decided to try it. From then, first by word of mouth and now with government support, SRI has gone from strength to strength. In 2012, Bihar had some 335,000 hectares of SRI paddy and had a record rice harvest. One small-scale farmer has broken the world record for rice production, achieving a staggering 22.4 tons/hectare, almost 10 times the previous typical yield in the state.

Anil Kumar Verma

I came to Gaya, a district in the Indian state of Bihar, in 2007, with the specific objective of encouraging women farmers to try SRI in their fields. I was expecting some difficulties, yet I was stunned by their lack of interest. Their opinion was clearly expressed by one of the farmers who came to listen to the SRI documentary I had brought to Shekhwara, a village in the Bodh Gaya block: "This man has come to fool us. We have been growing paddy for generations. We know how to do it!" Only when I was leaving this meeting did one of the participants, Mrs Kunti Devi, come to me and, showing sympathy, said she'd try it out. She faced enormous pressure from her neighbours, yet said she was willing to try. Their opinion changed when the tillers started coming out after just 12 to 15 days – and when she harvested the equivalent was nine tons per hectare.

A large number of women from Shekhwara and other villages heard about this and came to talk to Kunti Devi, and to count the number of tillers. More than 100 women in Gaya decided to try SRI in a part of their fields, together with 25 women in the neighbouring district of Nalanda. These plots were visited by

researchers from the *Krishi Vigyan Kendra* (Farm Science Centre), a government institution that is connected with the Bihar Agriculture University, and also from the Agriculture Technology Management Agency, ATMA. Both scientists and officers were invited to the fields to cut the crops and estimate the total yields. The Agriculture Director of the Magadh Division was one of those present when the results were announced: 12.5 tons/hectare. The high yields they witnessed convinced them to bring their colleagues and superiors to the field – and convinced more farmers to join us.

PRADAN organised a series of workshops in both districts, and before long, there were SRI songs and SRI plays, and even an SRI *adhivesan*, or a get-together of SRI farmers in the district. More and more farmers were talking about SRI and harvesting better yields with reduced inputs.

### From "rice intensification" to "root intensification"

There was so much interest that we set ourselves a high target for the coming year, hoping to work with 2,000 farmers. This



Ms Jyoti Devi (left) discussing the performance of eggplant SCI in her fields. Photo: Erika Styger

was far exceeded as a total of 5,146 tried SRI in their fields. The Chief Executive Officer of the Bihar Rural Livelihood Promotion Society (BRLPS), a World Bank-funded project run by the state government in Patna, and the District Agriculture Officer in Nalanda took particular interest in what was happening, and came to the fields several times. The local district magistrates and commissioners went to the villages several times to encourage and congratulate all the farmers for “their enormous contribution in ensuring the food security of these communities”.

For the 2008-2009 season, ATMA provided a small grant to PRADAN and with the support of the BRLPS we started trying to apply the principles of SRI to wheat in Gaya and Nalanda, working with 278 farmers. Having seen such clear results with paddy, there was little resistance to the idea of trying a similar approach with wheat. The low seed requirement and the higher yields motivated many farmers to try it out, even if they also feared the additional labour needs (especially at the time of sowing). Once again, a large number of people visited these plots, including farmers, local government officials and even representatives of the Indian Council of Agri-

culture Research. At the end of the 2009-2010 season, we counted more than 15,000 SRI wheat farms.

At the same time, PRADAN was also implementing the Diversion-Based Irrigation Project, supported by the Tata Trust. As part of this project, we started piloting SRI applications to *brinjal* (aubergine), tomato, bitter gourd and chillies in Gaya district. During the 2009-10 season, ATMA invited PRADAN to run a pilot project to validate SRI methods for enhancing the yields of rapeseed (mustard); and since 2011 we have also been working with sugar cane. Working with other crops has made us look in more detail at the main principles behind SRI and at the logic of providing more space for roots to grow. SRI came to be known as the System of Root Intensification, applying to many crops beyond rice, and it has been taken up in this form by the Agriculture Technology Management Agency and other government agencies. It is a happy coincidence that “sri” is a word used to express respect in Sanskrit and Hindi; “Sri Vidhi” or “SRI method”, quickly became a common name among the rural communities and the policy makers in Bihar.

Amplifying on the initial strategy, a large number of scientists and authorities have been invited to visit these

different SRI plots, and this has led to interesting exchanges of information with, for example, representatives of the Wheat Research Institute and with scientists at the Rapeseed Mustard Research Institute in Bharatpur, Rajasthan. The Joint Secretary of the Ministry of Rural Development in New Delhi, T. Vijay Kumar, came along with various state officials to visit the SRI wheat fields and meet the women belonging to the self-help groups promoted by the BRLPS.

In 2010 we were visited by Jayram Ramesh, the Indian Minister for Rural Development. Scientists from the National Institute of Rural Development in Hyderabad, and even from the International Rice Research Institute in the Philippines came to see the SRI vegetables along with local government officials. The higher yields have helped convince farmers to continue experimenting with SRI ideas and methods, but they have also been fundamental in convincing donors and authorities, from the district Rural Development Authorities to those in New Delhi.

**More SRI** In early 2009, the Chief Minister of the Government of Bihar invited farmers from the

whole state to come to a *Kisan Mahapanchayat* or “big farmers collective”. More than 2,500 farmers participated in this meeting together with Mr Nitish Kumar, the Chief Minister, and members of the Council of Ministers and many other top state officials. One of the invited farmers was Mrs Barati Devi from Gaya, who had obtained a yield of 18.1 tons/ha in her fields. She was asked by the organisers of the meeting to share her experiences in two minutes. The Chief Minister was very surprised to hear a village woman sharing such impressive results clearly and confidently, so he asked the organisers to give her more time. She ended up speaking for half an hour, describing her experiences – and convincing all those present.

BRLPS organised another big meeting with the members of the women self-help groups in October 2009. An SRI stall attracted the attention of the Chief Minister. He visited the stall before the inauguration of the meeting, and spent most of his time at the fair at the SRI stall, where he took great interest in the manual on *SRI Vidhi*. Addressing the meeting later, he referred to the System of Root Intensification as *khadyan samasya ka hal hi nikal ayega*: a solution to the food security issue in Bihar.

A few months later, the same Chief Minister came to Gaya with the State Agriculture Minister, Mrs Renu Kumari Kusawaha. Their visits to SWI wheat fields in Shekhwara, and their interactions with all farmers, convinced even more authorities, among them the Agriculture Production Commissioner, and this was a key factor in the state government’s decision to encourage the broader dissemination of SRI throughout the state. The government invited PRADAN to run a training pro-

**Having seen clear results with paddy, there was more interest to try a similar approach with wheat.**  
Photo: Norman Uphoff



gramme in the different divisions. We started working with village women as facilitators, training both farmers and the government officials. It was very encouraging to see that, in spite of the severe drought experienced between 2009 and 2010, interest in our work did not diminish.

Even more encouragingly, the state government declared 2011 as the SRI year, calling it *SRI Kranti* or the “SRI Revolution”. Different government agencies developed printed extension materials with the help of the

## “SRI is the solution to the field security issue in Bihar”

Agriculture Training and Management Agency, which supplemented the ones that PRADAN had already prepared. During the first days of January 2011, the Chief Minister himself opened the SRI Kranti year with a special session at the S. K. Memorial Hall in Patna. In front of more than 2,600 district officers, he expressed his government’s intention of reaching 350,000 hectares of SRI rice in the coming years. The Director of the Bihar Agriculture Management Extension and Training Institute, Dr R.K. Sohane, played a crucial role in organising a series of training workshops across all the divisions and districts of Bihar. The media, both print and electronic, helped disseminate the news and results. Farmers like Jayjeet Kumar, Barati Devi and Sunita Devi shared their experiences with the authorities in Patna, and teams of two women and one man from different villages provided training and support in all 38 districts of Bihar.

The results have been impressive. During the 2011-12 season the state’s statistics showed 335,000 hectares of SRI rice, involving thousands of families. The total production of paddy in Bihar, 7.2 million tons, broke the previous state record of 4.6 million tons. Much of this increase has come from the SRI fields, where the average yields are around seven tons/ha. In the 2011 *khariif* season, Sumant Kumar, an SRI farmer in the village of Darveshpura, in Nalanda district, harvested a world record paddy yield of 22.4 tons/hectare, for which he received the *Krishi Karman* award from the President of India on 15 January 2013. The same prize was awarded to the Agriculture Minister of the Government of Bihar for the overall production increases in the state. We have a lot to be proud of and to look forward to in Bihar!

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