

# Beyond higher Enhancing agrobiodiversity

A key goal of the joint Hivos/Oxfam Novib Knowledge Programme, Agrobiodiversity@knowledge, is to share knowledge and experience about farming practices from all over the world that use and enhance agricultural biodiversity. The System of Rice Intensification (SRI) is usually promoted as a successful approach for increasing productivity and decreasing costs. The Centre for Indian Knowledge Systems (CIKS) has demonstrated that SRI can also contribute to the conservation and wider dissemination of local and indigenous rice varieties, with positive outcomes for both farmers' livelihoods and biodiversity.

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India is home to a vast array of wild and cultivated crops. Over the past 50 years, as a result of the Green Revolution, high-yielding seeds have been increasingly selected for their responsiveness to the application of fertilizers. The consequences of these selection priorities have been felt all over India. In the state of Tamil Nadu, as in many others, farmers have realised that they were losing the indigenous paddy varieties, which previously offered them a wide array of advantages such as resistance to pests, diseases and drought.

**Multiple advantages** As in India as a whole, the state of Tamil Nadu has a growing population while the total farming area is diminishing. Over the past seven years, CIKS has been conducting research at various levels to increase rice productivity. Amongst other things, we have been promoting SRI, convinced that it can help increase productivity and decrease costs for paddy cultivation. Our experience, however, has shown that SRI can also contribute enormously to the conservation of indigenous rice varieties.

One of the reasons why the use of SRI has been taken up by a large number of farmers in this region is because

they are able to see direct and immediate benefits, even if they are only "partial adopters". A short field survey run by CIKS showed that only 7% of SRI farmers fully followed the different principles; 57% were "medium adopters" and 36% "low adopters". Our survey also found some of the reasons behind these different adoption rates. As awareness levels were initially low, many farmers considered the large spacing in between each plant a waste of space, and feared that crop growth in the nurseries was not appropriate. Farmers also mentioned that, in general, there is a lack of skilled labourers in some villages for transplanting at the right time. The additional labour required discouraged many farmers, especially when time was short.

Yet there has been little disagreement about the overall benefits of SRI. In all cases, SRI showed higher yields: those of the "full adopters" went up by 30-35%. Those of the "medium adopters" went up by 15-20%, and even when adoption was "low", farmers saw their yields increase by at least 10%. Apart from higher yields, another main advantage is that the approach requires the use of far fewer seeds. Moreover, since the seeds are initially sowed in nurseries with appropriate spacing between each other, there is less risk of getting the varieties

# yields through SRI

mixed up if it rains immediately after sowing. Additionally, since there are fewer seedlings, they can be handled more efficiently. The farmers are therefore aware of the purity of the seeds, and it is easier to select good quality seeds manually, which was not always the case in the past. Lodging takes place at a later stage than when grown with conventional methods. Consequently, the earheads form properly, and it is therefore possible to spot and remove admixtures of other varieties in the field itself. Moreover, the water requirements are low, which implies that several varieties can be planted in the same season. As a result, more seeds can be produced and saved every harvest – contributing enormously to the conservation and wider dissemination of local and indigenous rice varieties.

## CIKS' Seed Bank Programme

The Centre for Indian Knowledge Systems has been working for the past 20 years to set up seed banks in villages across Tamil Nadu, as a way of promoting a more sustainable agricultural system. Our programme aims to identify important traditional seed varieties and, together with farmers and all members of a community, promote their conservation and use. We soon realised

that SRI could be a key component of these efforts.

Our work is showing how the cultivation of these varieties serves to enhance the security of small-scale and marginal farmers' livelihoods. As part of this programme, a large network of farmers is exchanging seeds and information and seeds are being stored in community-level seed banks. Members of these seed banks are using part of their land for growing different varieties. CIKS provides them with an initial supply of seeds, and we discuss the necessary steps to manage their production organically. At the end of the season, farmers have to return twice the quantity of seeds they were initially provided with. The following season, these seeds are given to other farmers. This has a multiplying effect, and over time the community can manage the seed bank independently.

Our work has shown that the establishment of a seed bank programme can help increase the availability of local or indigenous varieties of rice and many other crops. Working together with CIKS, farmers are showing that this has immediate benefits. When CIKS first started, there were only a handful of indigenous varieties left. We work in villages where farmers grow 130 varieties of paddy and 50 varieties of indigenous vegetables in their fields and experimental plots. Farmers who are producing SRI rice seeds in an organic way have reported yields of up to 5.5 tons/hectare. These are now doubly certified (as organic and also certified by the Government's Seed Certification Department), and can therefore be sold at a higher price. It is thus not surprising that SRI is described as a "very handy innovation".

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The benefits are easy to see: evaluations and group discussions. Photos: K. Vijayalakshmi / CIKS