

A photograph of two men standing in a lush green rice field. The man on the left is older, with a white beard and balding head, wearing a light blue button-down shirt. The man on the right is younger, wearing glasses and a light-colored patterned short-sleeved shirt. They are both looking towards the camera. The background shows a line of trees and a cloudy sky.

“SRI is something unprecedented”

Norman Uphoff, Professor Emeritus of Government and International Agriculture at Cornell University, served as director of the Cornell International Institute for Food, Agriculture, and Development (CIIFAD) from 1990 to 2005. During this time he became acquainted with the System of Rice Intensification (SRI) in Madagascar, and realised that “something unusual was going on” as farmers were obtaining average paddy yields of eight tons per hectare instead of their usual two tons. Recognising the huge potential benefits, he has been working ever since to promote the testing, evaluation and understanding of SRI. “People can overestimate my role as easily as they can underestimate it... the truth is that the actual work has been done by thousands of people around the world.”

Interview: Jorge Chavez-Tafur

Described more than ten years ago in *LEISA Magazine*, the number of farmers practising SRI has grown enormously since then. “I think that SRI is something unprecedented, as very few innovations before have shown such a huge productivity windfall. And just as surprising is the fact that we have been able to proceed on such an international scale with so little support and so much opposition.”

Why is SRI so special? More than producing rice, we’re talking about a different way of working with farmers, involving both technical and social dimensions. The two are put together. SRI is not a technology that can be put into a box. It is a set of ideas and experiences, a set of relationships and a set of values. This is often really hard to get across, especially to agronomists or to economists who want consider SRI as “only this” or “no more than that”. It should be kept in mind that the original objective of *Tefy Saina* in Madagascar was not just to grow more rice, but to help the rural people understand their situation and take the opportunity to improve it. While SRI was intended to help people produce more food, it was also expected to help them “liberate” themselves from unfounded beliefs or social pressures.

Are its benefits being recognised? Unfortunately, there is still resistance from some sources, and some scientists still use controversy over the highest yields obtained with SRI to avoid facing up to the much greater average high yields which farmers get. Yet it is clear that things are changing; for example, there is now an SRI page on the website of the International Rice Research Institute.

Aren’t there still missing explanations? It is true that we still don’t fully understand all the agronomy behind SRI. But there are more than 300 published articles on SRI by now, so a lot is now known and has been validated. It has also been surprising to learn that SRI ideas and practices can be successfully extrapolated to wheat, finger millet, sugarcane and other crops, even recently to elephant foot yam. In Bihar, India, the first farmer trials with this root crop have given yields of 100 tons, whereas farmers usually get 20-30 tons, and best management practices from the university only reach 60 tons... Something is going on that promotes more photosynthesis and carbohydrate production, and greater yields across many crops. This is so different paradigmatically that a lot of people are simply not buying it.

Shouldn’t scientists be interested in learning what this “something” is? Absolutely, and I spend much of my time trying to get scientists in various disciplines to become involved in such research, even if this is, for many, a hard sell. Fortunately, more and more researchers are showing interest, and we are starting to work with more microbiologists, which is great, because I don’t see any way to understand the results that we are seeing in the field without paying attention to microbiology. Our minds are used to the macro, but there are millions, billions, trillions of micro-organisms involved in the soil, in plants, even in our own bodies. We are starting to understand how essential microbes are for human health and growth. The same applies to plants. What we are seeing is that the plant is not a little machine, to be redesigned and controlled entirely by us, but rather a system in symbiosis with billions of other organisms. SRI focuses on farming practices, dealing with seed quantities, spacing, water, labour, etc., but at the same time, it is about a shift in paradigms. Unfortunately, the latter is much harder to write about; we don’t yet know enough about it; and it puts off many agronomists who don’t want to question what they think they already know.

Are there other factors involved? It may be that SRI is not moving faster because there are no commercial interests behind it, although we have seen SRI promoted by grain millers in Sri Lanka and India (as SRI paddy has fewer unfilled grains, thus less chaff, and the grains do not break as easily during milling). With the adoption of

Farmers, researchers and local officials gathered in front of a signboard in the Tien Tai township, Zhejiang province of China, posted by the China National Rice Research Institute to publicise SRI demonstrations in Bu Tou village. Photo: Lin Xianqing



SRI there can be some losers, such as those who make a living selling seeds. It has taken some time for donor agencies to accept and promote SRI, maybe because their success is too often assessed by how much money is spent and SRI reduces rather than increases capital requirements. But the biggest benefit of SRI is for farmers, as it allows them to reduce their costs and become more independent. I like to think, as a social scientist, that the most interesting aspect of SRI is its farmer-centred and farmer-driven approach. Sometimes SRI is presented as a recipe; but I prefer to regard it as a menu. Unfortunately, it has been very difficult to change the focus of extension programmes from promoting input use to presenting ideas. Many extension agents have been trained to push agrochemicals, seeds, fertilizers or machinery. But SRI is not about inputs; it is about ideas. And this is hard for many to accept, even for some working with very innovative NGOs. SRI involves a paradigm shift.

Is there a change in the way researchers work with farmers?

I like to highlight the “triangular model” developed by Merrill-Sands and Kaimowitz. This is very different from the standard “linear model” of technology development, whereby scientists do the thinking and farmers are expected to adopt what extension agents tell them. Researchers, extension agents and farmers are

Comparing the roots of three conventionally-grown plants (left) with the roots of a single SRI plant (right) in the village of Kulubari in the Indian state of Tripura. Photo by Marguerite Uphoff



more effective when positioned in a triangular relationship, interacting with each other. In such a model, extensionists are facilitators and catalysts, and communications flow back and forth in all three directions. This triangular model represents what we see in SRI fields. Innovation can come from any one of the three partners. SRI is not only a farmer-led process; a lot of improvements have come from and continue to be developed by extension professionals and by researchers. This triangular model helps us to better understand what we’re seeing in the field, and also helps us recommend stronger interactions.

These interactions are also helped by “champions”...

Champions, advocates, proponents, catalysts, they come in all shapes and sizes, and all of them are “sticking their necks out” and playing very important roles. These are individuals who are all different, with different histories, but who share a common denominator: their interest in working for the benefit of farmers, consumers and the environment. Some have a political agenda, others are apolitical, but all are interested in farmers’ welfare. And they all share qualities such as being able to work up and down within the system, from capital cities to farmers’ fields. This is what I saw in Cambodia, where those promoting SRI were able to talk equally well to ministers as to farmers. One of the major advantages that we have had is the initiative of these champions. Another good thing has been that a lot of farmers have become advocates themselves, spending their own time and money to promote, defend and spread SRI. I was persuaded of SRI’s merits in the early 2000s when I met and talked with two remarkable farmers, one in Cambodia, Mey Som, and another in Sri Lanka, H.M. Premaratna, both of whom had trained several thousands of other farmers at their own expense. If farmers are willing to train others, in their own time and with their own resources, then it must be beneficial.

Aren’t you also a champion? After three years of seeing small-scale and poor farmers around Ranomana National Park in Madagascar getting four times more yield, on soils that some US agronomists considered some of the poorest they had evaluated, I thought I needed to learn enough French to read Father de Laulanie’s papers and enough agronomy to communicate with agronomists about what we were learning. Something was going on, and nobody was promoting it. It sort of fell to me to try to inform and mobilise people, to invite universities to do research, to approach donor agencies, and to make SRI visible outside Madagascar. My aim was not to promote the use of SRI as such, but more to get its methods and results evaluated, by both scientists and farmers. If they liked the results, they could take them and use them however

they liked. Surely it helped that I was based at Cornell, that I enjoy writing and editing, and also was travelling and meeting practitioners in many countries. Like the champions I mentioned already, I like to spend time with all kinds of people, with farmers, PhD students, research directors and policy-makers. I know that my directness has not always been appreciated and that my arguments and evidence are “controversial” in the eyes of many. Some have said that I am too passionate, and I have learned that most scientists don’t like passion. But passion has nothing to do with the truth of the matter. My goal has been to get SRI evaluated and understood. To get to the truth, let us study it.

Isn’t there an obvious need to look at what farmers are doing? Certainly, farmers have been growing rice for thousands of years. However, we should not assume that everything that farmers do is optimal. Our SRI experience shows that, for thousands of years, farmers have been ploughing their soils too much, have flooded their fields too much and have planted too many seedlings, wasting water and seeds and lowering yields. And millions of farmers must have seen that the rice plants in the upper portions of their fields, which are better drained, were growing better than those in the lower parts of their fields. Farmers should have figured out that it is better to use fewer seeds, but didn’t. So let us respect farmer knowledge, but let’s not idealise it or accept it uncritically, forgetting that there can be gaps or serious misunderstandings. For many different reasons, farmers also do some suboptimal things – just like researchers or professors do.

Do you see more communication and exchange among farmers once they start using SRI? This is another aspect that we should be looking at, and measuring if possible. Both in Cambodia and in Mali, for example, colleagues have mentioned to me that farmers who became engaged with SRI also became more interested in sharing their results, and in working together, leading to greater levels of collective action and social capital. The evidence so far is anecdotal, but I don’t dismiss it. We have also seen the emergence of self-help groups, for example, in the state of Bihar, India, where women who are now using SRI and SWI (SRI ideas applied to wheat) are co-operating to improve their households’ welfare, and are improving their families’ future by requiring that members’ daughters go to school. The government of Bihar has been wise enough to work together with local NGOs, and the results are tremendous, extending beyond agriculture to social benefits. Households are gaining access to credit, there is more local employment, the drudgery of women’s labour is reduced, local ecosystems become health-



Narayana Reddy, frequent contributor to LEISA-India, explaining his experience with SRI at his homestead farm in Maralenanahalli village, Karnataka, India. Photo: Krishna Prasad

ier; SRI has fuelled many other processes beyond better rice production.

So what’s next? At our first (and so far only) international conference on SRI, held in China in 2002, we decided to proceed along two parallel tracks: scientific research and extension activities. This was different from the usual strategy where science is done first and extensionists spread whatever scientists recommend. SRI has been proceeding with a “walk on both legs” approach; but extension has moved ahead faster, and the science is only now catching up. I’d like to see SRI being addressed across many disciplines, by soil science and plant breeding, but also economics, sociology, communications, etc. We are trying for SRI to converge with other agro-ecological approaches such as conservation agriculture, organic farming, IPM, and agroforestry. And we are getting more private sector involvement with SRI. There are 4 to 5 million farmers, most in Asia, using some or all of the recommended SRI practices. But it is only a matter of time before this doubles to 10 or 20 million, and then to 50 to 100 million and more. As the results keep spreading and accumulating, any remaining scientific opposition will become quite untenable, and more and more governments and donors will support the spread of this knowledge and these opportunities

For more information, please visit the *SRI-Rice ONLINE* website (<http://sri.ciifad.cornell.edu>) or write to Norman Uphoff directly. E-mail: ntu1@cornell.edu