

Experimenting with the System of Rice Intensification in Iraq

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Iraqi farmers usually cultivate rice according to cultural practices learnt from their parents. They use a large amount of seed (about 160 kg/ha) and dry cultivation methods. Transplanting is not common, but where it is used, seedlings are transplanted at distances of 15 cm from each other. Organic matter is not used, and farmers commonly depend on chemical fertilizer. Weeding is done by hand. Farmers generally grow an aromatic local variety, 'Amber 33', because it is preferred by Iraqi consumers. Since the early 1990s, farmers found they could ensure sufficient food production for the people if they also cultivated wheat after rice; however, this system has exhausted the rice land. It is in this context that we at the Al-Mishkhab Rice Research Station in Najaf, Iraq, began to try out the system of rice intensification – SRI. The aim was to enhance rice yields but also help to improve the soil, promote awareness of the environment and new agronomic practices among farmers, while reducing production costs.

In 2005 we began experimenting with SRI methods such as using wider spacings (25 cm x 25 cm), less seed, and early transplanting using the "parachute method", where young seedlings are thrown onto a shallow puddled field. These methods were tried out by one farmer on a quarter of a hectare in Al-Mahanawiya subdistrict, in the province of Diwaniya. The results were encouraging, with the "parachute method" using only 30 kg of seed per hectare, and yielding 4.5 t/ha, compared to the conventional dry method which used 160 kg of seed per hectare and yielded 3.8 t/ha. Farmers liked the "parachute method" because it was a fast way of transplanting seedlings into puddled fields. This method contributes to increased photosynthesis and encourages vigorous rooting.

After these results, in 2006 we decided to extend this method into three provinces that have large marshy areas. The farmers there grow flooded rice, and transplanting is not common due to shortages of labour and the limited time for transplanting. Farmers do not have access to transplanting machines, but do use a system of flow irrigation, so the "parachute method" of scattered transplanting is feasible in such situations. A chief of the Agricultural Department, several agriculture engineers, and farmers at all locations were trained in how to apply this method. The trials, comparing the "parachute method" to the traditional method, at eight sites in the three provinces, indicated yield increases in most sites. Yields were affected at some sites by improper nursery management, poor control over water, and high water salinity. However, the Iraqi Minister of Agriculture was impressed enough to promise to support extension of these methods next season, because of the low labour requirement and low cost. A field day was conducted at each site, attended by many farmers, professionals, managers, and political party representatives.

In 2006, for the first time in Iraq, we conducted rice experiments using cattle manure. Applications of composted cattle manure, assuming different levels of available nitrogen, were used, also with wider spacings (30 cm x 25 cm) between seedlings.

The results indicated that rice yield increased with the amount of composted manure applied, and further increased when a combination of composted manure and nitrogen fertilizer were used. These results can promote the use of organic matter where there is still heavy reliance on chemical fertilizer, and show us that it is cost effective to use 10 t/ha cattle manure rather than the 15 t/ha cattle manure we expected to need. Yield increases of 20 to 26 percent were also recorded at the same sites in comparison to traditional fields. These results are encouraging us to continue.

To reduce farmers' costs, increase yield, and promote soil improvement, we will now extend these trials to farmers' fields. We will provide training in how to produce organic matter for their fields from animal manure, plant waste and crop residues, food scraps, and food stock. Equally, reducing the need for water when using SRI concepts will contribute to reduced hours of water pumping work, which then also means less use of oil or electric power. Next planting season, we plan to establish demonstration plots in farmers' fields at three sites. We will also look at introducing mechanical transplanting, and rotary hoes to contribute to the range of SRI methods which can be useful for reducing costs, saving time and contributing to reducing environment pollution.



Photo: Author

The parachute method of rice transplanting improved rice yields when tested in Iraq.

A meeting was held recently at the Al-Mishkhab Rice Research Station to discuss the best ways to continue and expand SRI research and demonstration in farmers' fields in our difficult situation. We would also like to involve staff from the Department of Agriculture in rice-growing provinces to assist in our continuing efforts. At this meeting, we decided to form an SRI committee which will oversee SRI methods as a formal committee, leading to the establishment of an SRI project. We will notify the Ministry of Agriculture about our committee, and we intend to be active in many spheres, hoping that SRI will become a "national project".

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Appreciation is expressed to Shaher F. Nwahi, Abdul Kaddum J. Mossa, and Raheem A. Hallool for their cooperation and assistance in this work.