Extension of SRI methods in Iraq marshes

Khidhir A. Hameed
Al-Mishkhab Rice Research Station
Najaf - Iraq

After encouraging results in growing rice with 'parachute method' in Mahanwia subdistrict in Diwania Province last year, we decided to extend this method into three provinces that have large marshy areas. The farmers in those provinces are growing rice by flooded methods, and transplanting method is not common due to shortages of labor and the limited time for transplanting. Farmers do not have access to transplanting machines, and the irrigation systems in these locations are flow irrigation, so the parachute method of 'scattered transplanting' is feasible in such situations.

Sites

Parachute method was done in three provinces at several different sites (Table 1):

Table 1: Sites of rice growing by parachute method in Iraq marshes, 2006 season

Province	Site	area	variety
Thi-Qar	Shatra district	1/4 ha	Amber33
	Soq-Al Sheyokh district	"	"
	Karma bany Saeed subdistrict	"	"
Messan	Al- Adel subdistrict	"	"
	Al- Maymona district	"	"
	Al- Salam subdistrict	"	"
Basrah	Al-Qurna district	"	"
	Al- Mdaina district	"	"

Al-Adel field

Shatra field

A chief of the Agricultural Department, many agriculture engineers, and farmers at all locations were trained about how to apply this method, and this training was filmed and shown in Salad Din satellite channel. The Iraqi Minister of Agriculture admired it and promised to support its extension next season because it needs less time and is low-cost. A field day was conducted at each site, attended by many farmers, professionals, managers, and political party representatives.

Farmers' training in Al-Salam field

Karma field

Results and discussion

Table 2: Rice yield (kg/ha) by parachute method compared with traditional method, by provinces.

Province	Site	Parachute yield	Traditional yield	Rate of increase
Thi-Qar	Shatra district	4580	3700	26 %
	Soq Al Sheyokh district	1700	1700	0 %
	Karma Bany Saeed subdistrict	3070	4280	-30 %
Messan	Al- Adel subdistrict	4340	4280	2 %
	Al- Maymona district	4400	4310	2 %
	Al- Salam subdistrict	4540	3640	20 %
Basrah	Al- Qurna district	3620	3148	14 %
	Al- Mdina district	2680	3148	-15 %

These results indicate that in most of the parachute fields there was an increase in yield. Only in 2 fields (one in Thi-Qar province and another in Basrah province) were yields lower.

The observed reasons for this were:

1. Nurseries management was bad.
2. High water in nurseries suddenly.
3. High salinity of water.

The Shatra field in Thi-Qar province and all Messan province fields, which are irrigated from the Tigris river with good water supply, had generally higher yields in comparison with Soq al-Sheyokh and Karma fields in Thi-Qar province. The Basrah province field, which was irrigated from the Euphrates river with water having more salinity, experienced generally lower yields.

Taking sample from parachute field

Field day

Next planting season we will form a committee in all the paddy-producing provinces for carrying out SRI methods. One of the SRI methods of particular promise is the application of organic manure for rice crop, discussed in the attached report.

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

SRI trials on-going in Iraq: Organic matter

Khidhir A. Hameed
Al-Mishkhab Rice Research Station
Najaf – IRAQ

For the first time in Iraq, we are carrying out organic manure trials with rice crop. Previously, rice has been grown just relying on the Euphrates river flooding for recharge of complete soil nutrient elements. Transplanting method was common after the water river declined, and then supplemental irrigation was relied on. Chemical fertilizer was adopted, but it reduced the aroma and yield for the favored local variety Amber 33.

During the blockade period in the 1990s, growing of wheat after rice was introduced. This put stress on the soils and changed their chemical and physical properties. We think that SRI methods can offer a good remedy for soil stress.

Mr. Raheem A. Hallool and I have been conducting rice experiments using cattle manure at the Al-Mishkhab Rice Research Station in 2006, with application of compost assuming 0%, 12.5% and 25% available N in the composted cattle manure. P fertilizer was added to all treatments as P_2O_5 (20%), with wider spacing (30×25 cm) between seedlings. The results are encouraging us to continue.

Composting experiments

To reduce farmers' costs, increase yield, and promote better soil, we will now transfer our trials to farmers' fields and train them in how to produce organic matter for their fields from animal manure, plant waste and crop residues, food scraps, and food stock. Reducing the need for water using SRI concepts will contribute to reduced hours of water pumping work, which then also means less use of oil or electric power.

Results and discussion: *Effects of nitrogen and organic fertilizer on rice yield in Al-Mishkhab Rice Research Station, Najaf, Iraq*

Treatments	Compost Applied (Mt / ha)	Nitrogen Added (kg / ha)	Grain yield (Mt / ha)
Not composted + No chemical N	0	0	2336
Composted cattle manure + No chemical N	5	0	3384
Composted cattle manure + No chemical N	10	0	3544
Composted cattle manure + No chemical N	15	0	4058
Not composted + Chemical N	0	50	4684
Composted cattle manure + Chemical N	5	50	4632
Composted cattle manure + Chemical N	10	50	4330
Composted cattle manure + Chemical N	15	50	4900
Not composted + Chemical N	0	100	5056
Composted cattle manure + Chemical N	5	100	5258
Composted cattle manure + Chemical N	10	100	5728
Composted cattle manure + Chemical N	15	100	5888

The results indicated that rice yield increased with compost applied, the yield further increased with compost + chemical N added also.

- 15 Mt/ha cattle manure + 100 kg/ha chemical N treatment gave highest yield
- Yield increased 15% with 15 Mt/ha cattle manure + 100 kg/ha chemical N treatment in comparison with chemical N used alone.
- The results showed that it is feasible to recommend for 10 Mt/ha cattle manure + 100 kg/ha chemical N because its yield approached that of 15 Mt/ha cattle manure + 100 kg/ha chemical N yield with less cost.

Next planting season, we plan to establish demonstration plots in farmers' fields at 3 sites. Below is a picture comparing the phenotype observed with SRI methods adapted to our local conditions with that from conventional methods.

With SRI

Non SRI