MECHANIZED TRANSPLANTED SRI – Asif Sharif, Pakistan

We have followed all the six main steps of SRI:

- Early transplanting
- Careful transplanting
- Wide spacing
- Weeding and soil aeration
- Water management
- Compost application

These are the main steps in our mechanized production of rice following SRI principles:

1. Start nursery with raised bed and mulch, creating mats from a mixture of soil + compost + rice hulls (1), on which pre-germinated seeds are sown. These produce seedlings that can be transported on these mats for easy handling by laborers riding the transplanting machine (2).

2. Laser-level 10-acre plots 2,000 feet long, which can be given controlled irrigation through siphon tubes serving each furrow between the beds (3).

3. Make raised beds using a specially designed machine that makes these beds (4), placing fertilizer and compost in a band in the root zone, all in one continuous operation (5).

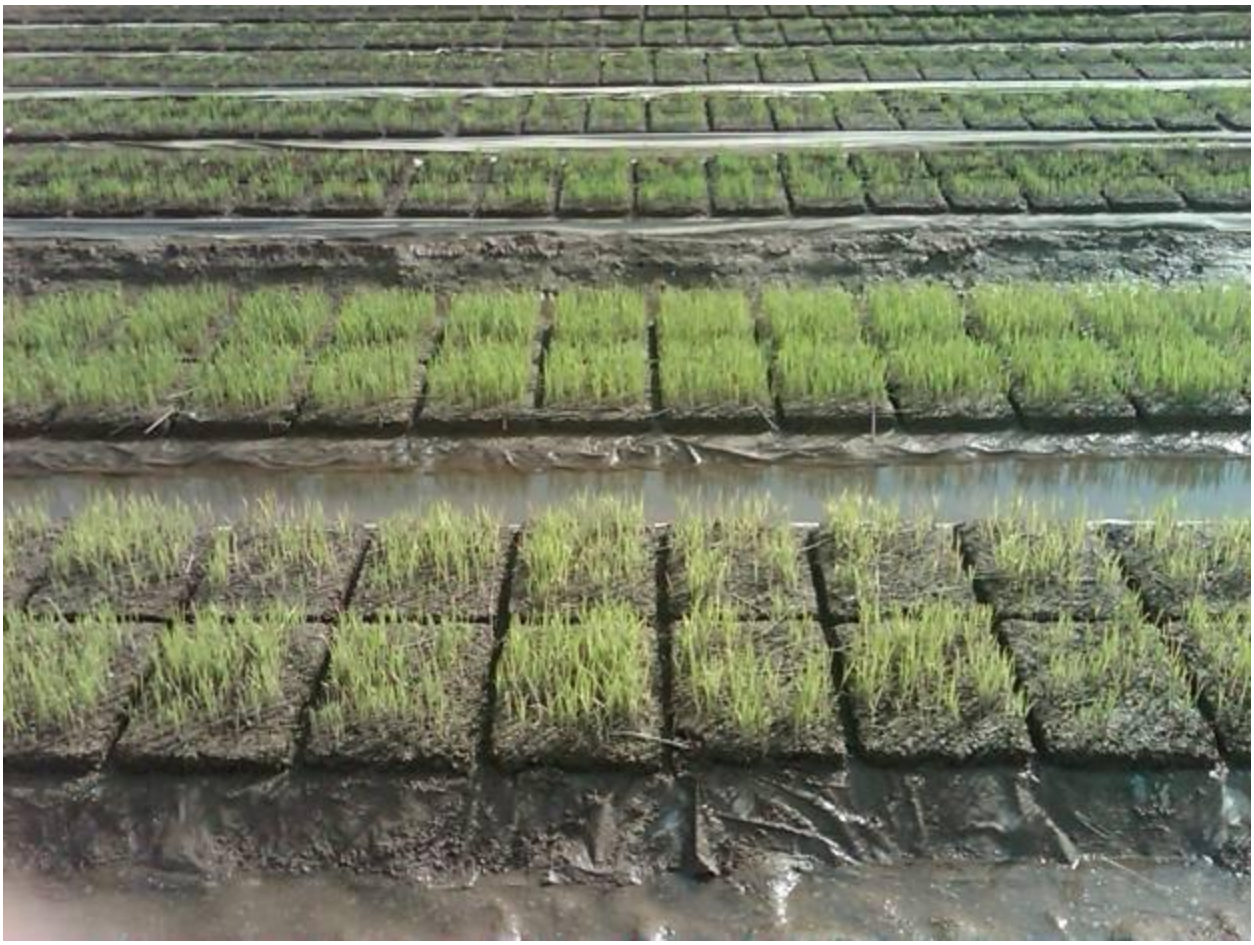
4. Transplant 10-day-old seedlings using a specially developed machine that makes holes in the beds at precise intervals, with line-to-line and plant-to-plant distance of 9 inches (22.5 cm) (7, 8, 9) and fill the holes with water to place seedlings by hand.

5. Use water bowser designed to supply water and nursery trays to the transplanter (6).

6. Eliminate weeds and aerate soil with a precision weeder designed to work between plant rows placed at 9 inches width (22.5 cm) (11). Weeder is fully automated and does not need a driver, being guided by the furrows already created between the raised beds. Soil aeration is an important function of weeding process (12, 13).

The Department of On-Farm Water Management is keeping a record of water used. So far we have saved over 50% water comparing with the rice crop planted with standard practices. Rice plant growth is very vigorous and successful (3, 10, 14, 15).

#1: Mats of soil, compost and rice hulls for sowing seeds to grow young seedlings



#2: Mats with growing young seedlings

#3: Siphons for transferring water from canal into furrows between raised beds

#4: Raisedbed maker with compost and fertilizer applicator

#5: Making raised beds after field has been laser-leveled, with furrows between the beds

#6: Water bowser for supplying water to transplanting machine

#7: Holes punched into raised beds at regular spacing, with staggered geometry (diamond shaped) rather than square pattern as with classic SRI.

#8: Laborers transplanting 10-day-old seedlings into holes on raised beds

#9: Transplanting machine straddling raised bed, with water tank to provide initial water supply

#10: Raised beds after transplanting and 1st irrigation

#11: Mechanical weeder designed for inter-cultivation between rows 9 inches apart (22.5 cm)

#12: Mechanical weeder, driving down the furrows, to weed between rows of rice plants

#13: Breaking of soil crust between plant rows to facilitate the soil’s absorption of water and air

#14: Growth of rice crop mechanically transplanted before weeding

#15: SRI crop growing with full tillering, averaging 90 tillers per plant, 71 days after transplanting