



Photo by the writer

Improved mode to grow rice

By Dr Mubarak Ali

MANUAL transplantation of paddy is the most arduous job that is performed by about a million workers, mostly women, in standing water under the scorching sun.

Delay in rice transplantation also occurs because of shortage of labour, followed by low plant population (approximately 60,000 plants as compared to 80,000 plants/acres recommended), causing 15-20 per cent reduction in yield.

To overcome these problems, the Punjab Agricultural Research Board (PARB) has initiated a research project on "standardisation and popularisation of direct seeding to increase rice productivity and resource conservation" at the Rice Research Institute, Kala Shah Kaku (RRI-KSK).

The objective is to develop an alternative to transplantation so that rice crop could be grown in a field condition similar to that of wheat crop. This would also reduce water requirements of the crop and increase productivity. The project has standardised all management practices related to DS of rice in watter condition, just like in wheat. The DS in rice is already common in the Philippines, Vietnam, and many other rice-growing countries.

The standardisation of the technology in terms of seed operations like soaking and drying, seed rate, number and intensity of irrigation, weedicide control, and variety

for DS technology has been completed over last two years of experimentation which are as follows:

Prepare the land and bring it in watter condition just like for wheat until June Soak 15 kg/acre good quality seed for two hours. Dry the seed by spreading it on a piece of cloth for about 15 minutes. Sow the seed by giving cross-chatta in two different cross directions. Level the field (i.e., give so-hagha) so that the seed is covered by soil, not more than three inches deep. Give light irrigation immediately after sowing and repeat it after every five days until the booting stage when two heavy irrigations are needed. After that stage, again use light irrigation after every seven days.

Two post-emergence weedicide sprays within 15 days after sowing will effectively control weeds. If some weed patches persist, use selective spray on those patches to completely eliminate weeds from the field. The process of weed control must be completed within first 30 days of the sowing.

The cost of rice cultivation can be cut by Rs3000-4000 per acre at the current input-cost on account of saving in puddling and transplantation operations. In addition, DS will save 50 per cent of water, and increase yield by 10-15 per cent. The quality of rice sown under DS has already been tested by the RRI-KSK seed lab, and the results indicate that the practice does not alter the quality of Basmati rice.

Now the project is at the commercialisation stage. After standardisation of DS tech-

nology, the RRI-KSK has put the DS experiments on farmers' field under direct supervision of the project staff. Throughout Punjab about 20 such experiments are being conducted. The farmers were provided with seed, fertiliser, weedicide and technical guidance, while all operations were conducted by farmers themselves.

Dr Muhammad Akhtar, Director RRI-KSK, visited 11 farmers' sites where DS experiment is being tested. The plot size of direct seeding was kept around two acres, where seed, fertiliser and weedicides were provided from the project cost. Some farmers tested the technology on their own larger fields varying 2-6 acres. No input was provided for such fields, although on such fields farmers repeated the management practices done on adjacent researchers' plot.

All farmers confirmed Rs4000-5000/acre net saving in cost and 50 per cent saving in water, but increase in yield could not be confirmed as the crop was still in the booting stage.

Dr Akhter has cautioned that the success of DS technology depended upon the quality of weedicide and its precise use to control weeds that emerge immediately after DS of rice seed in fields. The government needs to monitor the quality of weedicide supplied to farmers

The spread of DS technology would need the guidance and supervision of PARB and the Extension Department of the Government of Punjab to prove its utility and worth.