

Entry No. IRRC-0236

Category	: International Rice Research Conference
Select Theme	: Sustainable and equitable farming systems
Endorsement email	:
Keyword 1	: Yield gaps
Keyword 2	: Water management
Keyword 3	: Sustainable management practices
Title of Entry	: Reduced Water Use and Labor Cost, and Increased Productivity of Direct Seeded Basmati Rice in Punjab, Pakistan
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Select only one type of presentation	: 15 minute oral presentation
Abstract	: Rice is a main staple food after wheat in Pakistan. It is cultivated through raising nursery seedlings and transplanting in puddled soils. Declining surface water in canal irrigated area, higher cost of pumped groundwater, high labor costs and drudgery in manually transplanted rice have motivated researchers to develop technology and practices for direct seeded rice (DSR). Around 30% of total water use in rice is consumed in puddling of soil (land preparation) and transplanting operations, besides this additional water is required for raising rice seedlings in nurseries. Continued puddling over the decades has also led to

deterioration in physical properties of soils through structural break down of soil aggregates as well as capillary pores and clay dispersion. Puddling forms a compacted layer (plough plate) that restricts infiltration of water causing temporary waterlogging, which restricts root penetration and growth of succeeding wheat crop after rice harvest. DSR technology helped to eliminate puddling and does not need continued ponding of water and thus reduces water use for rice production, resulting in saving of additional 15-20% of water. Besides being more water efficient, DSR is less labor intensive, farmers' friendly, time saving and cost effective technology. It is a cost-effective option for rice growers to increase their income and reduces drudgery role. The DSR technology and production practices have been refined by Rice Research Institute, Kala Shah Kaku and 20 field demonstrations of DSR technology with modified seed drill were conducted during 2017 in Sheikhpura, Gujranwala, Hafizabad, Sialkot and Narowal districts. Super basmati rice variety was direct seeded in the demonstration plots in comparison with manually transplanted rice. The overall results indicated that 20% higher paddy yield under DSR as compared to manually transplanted rice. Moreover, during 2017 in Punjab province, more than 2500 farmers cultivated the rice using DSR on an area of about 10000 ha and found it cost effective than manually transplanted rice. Grain quality traits in DSR planted basmati rice were also estimated indicating that quality of grain under DSR was equally good from that of manually transplanted rice.

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