

Entry No. IRRC-0230

Category	: International Rice Research Conference
Select Theme	: Sustainable and equitable farming systems
Endorsement email	:
Keyword 1	: Precision Agriculture
Keyword 2	: Yield gaps
Keyword 3	: Mechanization
Title of Entry	: Direct seeding of Basmati Rice through drills: Potential and constraints in Pakistani farm settings
Presenting author	: Dr Muhammad Jehanzeb Masud Cheema
Presenting author email	: mj.m.cheema@uaf.edu.pk
Co author 1	: Muhammad Nauman
Co author 2	: Dr Abdul Ghafoor
Affiliation presenting author	: Precision Agriculture Program, CAS-AFS, University of Agriculture, Faisalabad
Affiliation 1	: Department of Farm Machinery and Power, University of Agriculture, Faisalabad
Affiliation 2	: Department of Farm Machinery and Power, University of Agriculture, Faisalabad
Select only one type of presentation	: 15 minute oral presentation
Abstract	: In Pakistan, rice is an important cash crop and being cultivated over an area of 2.75 million hectares (mostly transplanted rice) with production of 6.8 million tons. In 2017, foreign exchange earnings from rice has crossed one billion US\$ while exporting 3.35 billion m ³ of virtual water. Groundwater is a major contributor of water for irrigation in Punjab including rice as it contributes almost half of the total water used at the farm level. Further quality of groundwater is also a concern in terms of productivity and soil health, in addition to one of the major cost component for production of basmati rice. High labor and water

requirement, time intensiveness, lesser plant population and increased methane emissions are associated problems of transplanted rice. Alternatively, direct seeded rice (DSR) is getting popularity in the country due to benefits like labor saving (5 man days/ha compared to 25 man days/ha in transplanted rice), time and water saving (12–30%) and optimal plant population. The machine drill for DSR is available with local industry after some modifications in existing drills and in use since last four years. However, there are some technical and social issues restricting its wide spread adoptability. In order to test and evaluate existing DSR drills, a testing, evaluation and calibration survey was conducted under Technical Assistance Project financed by Asian Development Bank in eight districts of Kallar tract of Basmati rice in the Punjab province. Soil and water samples were collected and tested, plant germination was counted and vegetation vigor was measured using hand held optical sensor. Nine variants of DSR drills were calibrated to evaluate seed rate, uniformity, seed drop from individual tube, and row-to-row distance. Large variability in seed rate ranged from 17.5 kg/ha to 45.5 kg/ha was observed. Similarly, seed drop from individual tube of each drill was also variable (e.g. 27–72.4 gm/40 rev./row/drill), while row-to-row distance in individual drill was also not fixed resulted into non-uniform germination percentage. As far as, soil condition was concerned, most of the sites were suitable for production of Basmati rice. The plant vigor or normalized difference vegetation index (NDVI) was

[Read Less»](#)

Uploaded Files »

No files found.