

**Entry No. IRRC-0237**

Category	: International Rice Research Conference
Select Theme	: Sustainable and equitable farming systems
Endorsement email	:
Keyword 1	: Sustainable management practices
Keyword 2	: Water management
Keyword 3	: Weed management
Title of Entry	: Weed Management and Irrigation Scheduling affect Productivity and Profitability of Direct Seeded Basmati Rice in Punjab, Pakistan
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Select only one type of presentation	: 15 minute oral presentation
Abstract	: Weeds caused almost complete paddy yield loss when allowed uncontrolled for the growing season in direct seeded rice (DSR) owing to favorable soil moisture conditions for weeds germination and growth. Therefore, weed control was found very important for DSR. Significant reductions in weeds infestation were recorded with the use of different herbicides alone or in combination. The dry mass of <i>Cyperus rotundus</i> weed was reduced by 82 to 93% using herbicide phenoxaprop p-ethyl, bispyribac sodium + bensulfuron methyl and ethoxy sulfuron methyl. <i>Leptochloa chinensis</i> weed was reduced by 79-87% using phenoxaprop p-ethyl

and bispyribac sodium + bensuluron methyl. For DSR, irrigation strategy was employed to cover the field with water like upland crops while observing the physical appearance of soil and plants. The field was again irrigated when there appeared hair-line cracks in soil after an irrigation. However, in addition to the said routine irrigation strategy, three additional irrigations each at vegetative stage as well as at heading stage were also applied to create saturated soil condition to evaluate the effect on paddy yield and milling quality. Application of 3 additional irrigations to Basmati rice cultivar Super Basmati at heading stage in addition to the routine irrigations resulted in 29% higher paddy yield as compared to 3 additional irrigations at vegetative stage in addition to periodic irrigation. Therefore, irrigation water application at heading stage was found to be critical to obtain higher paddy yield if rainfall is limited at this stage as only 44 mm rainfalls (out of 306 mm total rainfalls) occurred during the reproductive stage. More number of productive tillers per unit area in DSR (23 to 51% higher) and plant population (15 to 28% higher) resulted in statistically at par paddy yield and even 37-78% higher paddy yield (up to 6289 kg/ha) than that of transplanted rice. Statistically at par values for broken rice (25-35 %) and head rice recovery (73-83%) were obtained for both DSR as well as conventional transplanted Basmati rice. The DSR resulted in higher benefit-cost ratio (2.44) than that of transplanted rice (1.57).

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