
Oral sessions | Field Crop Production | O12: Concepts, Prospects, and Potentiality of Crop Production in East Asia

[O12] Concepts, Prospects, and Potentiality of Crop Production in East Asia

*Sponsored by the Korean Society of Crop Science

Chair: Sang-In Shim (Gyeongsang National University, Korea)

Chair: Takeo Sakaigaichi (Kyushu Okinawa Agricultural Research Center, National Agriculture and Food Research Organization, Japan)

Chair: Hiroshi Ehara (Nagoya University, Japan)

2021年9月9日(木) 14:30 ~ 16:30 Room 1 (Oral) (Field Crop Production)

15:40 ~ 15:55

[O12-05] Varietal Differences in Photosynthetic Characteristics, Yield and Water Use Efficiency of Rice under Drip Irrigation with Plastic Film Mulch

*Nominated for Presentation Awards

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Drip irrigation system with plastic film mulch (DI) is a technology which inevitable in the wake of severe water shortage in rice-growing regions of the world. The objective of this study was to characterize the yield performance, photosynthetic characteristics and water productivity of 9 rice cultivars (3 upland cultivars, 2 F1 hybrid cultivars, 4 paddy cultivars) grown in continuous flooding (CF) and drip irrigation with plastic film mulch (DI) systems in 2 years experiment. The average grain yield of cultivars under the DI was not different compared with those under CF. However, the high number of spikelet per m² produced under DI compared with CF was offset by the difference in grain weight and ripening ratio caused by the irrigation system. Stomatal conductance, transpiration rate, actual and maximum quantum yield of photosystemII of the 9 cultivars were statistically non-significant under CF and DI in both years. The total water input (irrigation and rainfall) and irrigation under DI were 35%, 60% lower than of CF, respectively. Our results showed that DI had a great water-saving capacity and the average grain yield of cultivars under the DI was not significantly different compared with those under CF. Among the yield components, the high number of spikelets per m² was responsible for the comparable yield obtained under DI in relation to CF. Moreover, upland cultivars with its moderate values seem to be the better choice for DI.