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ONLINE ISSN : 1349-1008

PRINT ISSN : 1343-943X

Plant Production Science

Vol. 8 (2005) , No. 4 487-492

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Water Saving by Shallow Intermittent Irrigation and Growth of Rice

[Jong Gun Won](#)¹⁾, [Jang Soo Choi](#)¹⁾, [Seung Phil Lee](#)¹⁾, [Seung Ho Son](#)²⁾ and [Sang Ok Chung](#)²⁾

1) Gyeongbuk Agricultural Technology Administration

2) Kyungpook National University

(Received: April 16, 2004)

Abstract: To reduce water requirement and improve water productivity (the grain yield per unit volume of water irrigated) by water-saving irrigation techniques, we examined the effects of very shallow intermittent irrigation (VSII, 2cm), shallow intermittent irrigation (SII, 4cm) and traditional deep water irrigation (DWI, 10cm) on rice growth and yield in the field for two years. The amount of water irrigation during the rice-growing period (average of two years) was 318, 391 and 469 mm in VSII, SII and DWI, respectively. Rice growth and grain yield were not significantly influenced by the treatments. As the irrigation water input decreased, the water productivity increased. The water productivity increased by 46 % in VSII and 20 % in SII on the average as compared with DWI. The shallower the irrigation depth, the lower the breaking weight and the higher the lodging resistance, and the deeper the roots in the paddy soil. In DWI, the percentage of head rice was lower and the protein content was higher, suggesting deterioration in the palatability of cooked rice due to the increase of chalky rice. The water-saving rate was 32.9 % in VSII and 17.2 % in SII as compared with typical deep water irrigation in Korea.

Keywords: [Rice growth](#), [Water management](#), [Water productivity](#), [Water saving ratio](#)

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To cite this article:

Jong Gun Won, Jang Soo Choi, Seung Phil Lee, Seung Ho Son and Sang Ok Chung: "Water Saving by Shallow Intermittent Irrigation and Growth of Rice". *Plant Production Science*, Vol. **8**, pp.487-492 (2005) .

doi:10.1626/pps.8.487

JOI JST.JSTAGE/pps/8.487

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