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# The Effect of Irrigation and Fertilization on Agronomic and Physiological Traits in Wheats

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**[Introduction]**
The objective of this study was to determine the effects of different treatments in irrigation and additional N-fertilization on agronomic and physiological traits of Ofree known as ω-gliadin deficient Korean wheat cultivars, cultivated in Gyehwado.

**[Materials and Methods]**
Ofree was cultivated with 2 different irrigation conditions, no irrigation (I-0) and 2 times irrigations at heading and milky stage (I-2), and 3 different fertilizations, conventional fertilization (40kg/ha at regrowing stage, N-0), 2 different additional N-fertilizations, booting (40kg/ha, N-1) and bolting (40kg/ha, N-2) stage. Agronomic, culm and spike length, tiller, yield, etc, and physiological traits, leaf area index (LAI), changes of weight in leaf, culm and spike during maturation, etc, were evaluated.

**[Results and Discussion]**
Culm and spike length were longer at irrigation treatment, grain yield, 1,000 kernel weight, and test weight were higher at additional N-fertilization treatment, but there was no difference in tiller and root weight at the heading stage. The LAI of the plant was higher at I-2 and N-2 but the leaf area index of I-0 and N-1 was similar to I-0 and N-0, but no difference was found in the LAI of the canopy. The chlorophyll content of N-1 and N-2 was higher than others, but no difference was found in photosynthesis yield. There was no significant difference in the weight of leaf, culm, spike, and grain during maturation with the treatments, although spike and grain weights were increased with the progress of maturation. Quality evaluation, flour and noodles, is in progress.

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