

[P1] Field Crop Production

Thu. Sep 9, 2021 12:15 PM - 2:00 PM Room 1 (Poster) (Field Crop Production)

1:15 PM - 2:00 PM

[P1-10] Differences in Growth and Physiological Characteristics of Winter Wheat Growth under Various Nitrogen Topdressing Conditions

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The experiments with various levels of nitrogen topdressing was conducted to investigate the effects of various nitrogen topdressing conditions on the growth of winter wheat in Jinju, Korea from autumn 2018 to spring 2019. When nitrogen topdressing was applied at 0% of the standard fertilization rate, leaf SPAD value and NDVI were the lowest at 25.5 and 0.5210, respectively, and the plant height, leaf area index and yield-related characteristics were also the lowest. Crude protein content of grain was highest as 13.9% at recommended fertilizer application rate and lowest as 11.08% without nitrogen topdressing. Hyperspectral analysis, a non-destructive method, was performed using a portable hyperspectral camera to know changes in physiological characteristics of crops. As a result of analyzing the hyperspectral reflectance characteristics of winter wheat leaves according to various nitrogen topdressing rates, the difference in the hyperspectral reflectance at booting stage was most remarkable, and the reflectance in the green color region was high at 20% of the recommended N topdressing rate and low at the 80% of recommended N topdressing rate. The results show that the crude protein content in grain is the lowest as 7.81% at 20% nitrogen topdressing rate, which is consistent with the highest as 13.78% at 80% nitrogen topdressing rate.

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