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## Rice Varieties Adaptable to the Temperature and Day-Length Conditions of the Major Rice Production Area in North Korea

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### [Abstract]

The heading response of 40 genotypes, originated from South Korea, North Korea, and northern China, was tested under the temperature and day-length conditions of thirteen major rice production area in North Korea, with aims to select adaptable varieties to the given environment and crop period for each region. To simulate regional environment, seven-day mean temperature with 10°C daily temperature range and day-length for each region were imposed at a weekly interval in the walk-in phytotrons.

Olbyeo1, Olbyeo2 and Sonbong9 originated from North Korea, Kenjiandao3 and Nongdae3 from northern China, and Joun from South Korea demonstrated the earliest heading stage depending on the regional environment. Thirty-four varieties reached heading stage within the regional safe marginal heading date (SMHD) under Haeju and Sariwon conditions while 16 - 17 varieties reached the stage under Wonsan, Changjon, Supung, and Yongyon environment. Some of the middle and mid-late maturing varieties originated from South Korea could reach heading stage within SMHD under the temperature and day-length conditions of Kaesong, Haeju, Sariwon, Nampo, and Pyongyang located in west-southern plain. Majority of early maturing varieties, but not middle or mid-late ones, showed heading stage within SMHD under the conditions of Singye, Anju, Kusong and Sinuiju. Only some early maturing varieties demonstrated heading stage within SMHD under Yongyon, Changjon and Wonsan environment.

These results provide basic information on the varieties able to complete their normal life cycle under the regional environment in North Korea. It is further suggested that yield performance of the selected varieties for each region in this study be tested to select high yielding rice varieties adaptable to North Korean environment.

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