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ORYZA (v3) 모델을 사용한 중만생 벼 품종의 출수기 및 LAI 예측

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Estimation of Flowering Date and LAI for Mid-Late Maturing Rice Cultivars Using ORYZA (v3)

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Crop models have been used to predict flowering date for efficient managment of fertilizer application. Recently, the ORYZA (v3) model was developed to improve the ORYZA2000 model, which has been used for simulation of rice growth in Korea. Still, little effort has been made to assess applicability of the ORYZA (v3) model to farms in Korea. The objective of this study was to examine the feasibility of using the ORYZA (v3) model as a part of a decision support system for fertilizer application in terms of prediction of flowering date and LAI. Field experiments were conducted from 2015 - 2016 at the Rural Development Administration (RDA) to obtain observed rice phenology data. Shindongjin cultivar which is mid-late maturity type was grown under no fertilizer application and application of fertilizer at the rate of 11 Kg N/10a. The input data for the ORYZA (v3) model were prepared weather and soil input files using data obtained from the Korean Meteorology Administration (KMA) and the Korean Soil Information System, respectively. Input parameters for crop management, e.g., transplanting date and planting density, were set to represent management used for the field experiment. The ORYZA (v3) model predicted flowering date within 1 days for two seasons. LAI was underestimated by 70 % using the ORYZA (v3) model. Those results suggested that the ORYZA (v3) model would be useful for development of a decision support system for fertilizer application because the model had reliable prediction of crop growth and the input data could be prepared readily using data tools.

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