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Simulation of Growth and Yield of Rice Under Irrigation and Nitrogen Management Using ORYZA2000

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Abstract : To evaluate the model ORYZA2000, under the management of irrigation and nitrogen fertilization experiment, a split plot with a randomized complete block design with three replications on hybrid cultivars (spring) in the 1388-1387 crop year was conducted at the Rice Research Institute. Permanent flood irrigation as the main plot in the fourth level, around 5 days, from 11 days to 8 days away, and the four levels of nitrogen fertilizer as the subplots 0, 90, 120, and 150 kg N Ha were considered. Simulated and measured values of leaf area index, grain yield, and biological parameters using the regression coefficient, t-test, the root mean square error (RMSE), and normalized root mean square error (RMSEn) were performed. Results, the normalized root mean square error of 10% in grain yield, the biological yield of 9%, and 23% of maximum LAI was determined. The simulation results show that grain yield and biological ORYZA2000 model accuracy are good but do not simulate maximum LAI well. The results show that the model can support ORYZA2000 test results and can be used under conditions of nitrogen fertilizer and irrigation management.

Keywords : evaluation, rice, nitrogen fertilizer, model ORYZA2000
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