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AGRONOMIC PERFORMANCE OF RICE (*ORYZA SATIVA L.*) GROWN UNDER ALTERNATE WETTING AND DRYING (AWD) IRRIGATION REGIMES WITH SPLIT APPLICATION OF POTASSIUM FERTILIZER

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ABSTRACT

The experiment was conducted at the Agronomy Field Laboratory, Department of Agronomy and Agricultural Extension, University of Rajshahi during the period from December 2015 to May 2016 to investigate the effect of alternate wetting and drying (AWD) irrigation regimes and spilt application of potassium fertilizer on the yield and yield components of transplant Boro rice (cv. BRRI dhan28). The experiments consist of factor A, two potassium fertilizer application practices (control or single application, K1 and split application, K2). The result showed that spilt application of potassium has progressive effect on different agronomic parameters but most of the cases, those were not statistically significant. The highest grain yield (6.708 t ha^{-1}), Panicle length (27.345 t ha^{-1}), tiller $hill^{-1}$ (13.33 t ha^{-1}), harvest index (47.304) were obtained from K2 treatment. Factor B, Four irrigation regimes ie. CK or control, irrigation was applied as per farmers practice (continuous flooding); AWD-1, irrigation was applied observing level of water in the field tube at field level; AWD-2, level of water in the field tube at 5 cm below the field level and AWD-3, level of water in the field tube at 10 cm below the field level. Considering irrigation regimes, it was found that most of the cases control irrigation treatment (conventional flooded irrigation) gave the highest grain yield (6.853 t ha^{-1}), panicle length (26.517 t ha^{-1}) tiller $hill^{-1}$(12.50), grain $panicle^{-1}$ (96.78 t ha^{-1}), filled grain (82.12 t ha^{-1}) but all those cases AWD^{-1}, irrigation provides almost similar performance. Although AWD irrigation could not increase rice yield, it can save huge amount of irrigational water. Based on our findings it can be concluded that AWD irrigation was applied observing level of water in the field tube at field level along with split application of potassium fertilizer would be the best practice for rice cultivation in the study area.