

Estimation of water use efficiency in paddy (*Oryza sativa* L.)

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Received May 20, 2018 and Accepted July 10, 2018

ABSTRACT : The field experiment was conducted at Irrigation Research Station of Sam Higginbottom Institute of Agriculture, Technology & Sciences, Allahabad, during kharif season (July- Dec) of 2015 on clay loam soil to examine the effect of irrigation levels on yield, biomass and economic return of paddy and develop a biomass yield relationship of paddy. CROPWAT 8.0 was used to calculate the water requirement and irrigation scheduling for paddy. Five year meteorological data was used by CROPWAT 8.0. The crop water requirement for paddy was 767.6 mm and gross irrigation was 1584.3 mm. The marketable yield of paddy was significantly higher (4.63 t/ha) at T_4 (100%). The irrigation at T_4 (100%) resulted in higher gross return, net return and benefit cost ratio of paddy. The biomass of paddy was significantly higher at T_4 (100%). The biomass directly propositional to yield i.e. biomass increases with the increase of yield of paddy. The graph of biomass and yield showed strong quadratic relationship.

Key Words : Rice (*Oryza sativa* L.), irrigation water requirement, irrigation scheduling, gross return, net return, benefit cost ratio, paddy, CROPWAT 8.0.