

**Growth and Yield Response of Rice Plant (*Oryza sativa* L.) in Soilless Planting Media Based on Alternate Wetting-Drying Irrigation (AWD)**

*Supervised by:* Ir. Damanhuri, M.P. and Tirta Wahyu Widodo, S.P., M.P.

**Indra Alief Titale**

Food Crop Production Technology Study Program  
Department of Agricultural Production

**ABSTRACT**

*The demand for rice in Indonesia is increasing along with the increasing population. Recently, Indonesian rice production are continually declining due to agricultural land conversion. These conditions encourage farmers to use available vacant lands in urban areas for optimal rice production by using alternate wetting-drying (AWD) techniques. This research aims to find out the response of rice plants in soilless planting media based on AWD as a method of future farming. The experiment had been arranged in a complete randomized factorial design within 2 factors and 3 repetitions. The first factor was the type of soilless planting media consisting of topsoil media+ricehusk+non-AWD (M0), water media+rice husk+non-AWD (M1), water media+non-AWD (M2), and water media+AWD once every 1 day (M3), while the second factor was rice variety consisting of Ciherang (V1), IR 64 (V2), and Mapan 05 (V3). The results showed that water media+rice husk+non-AWD had the best influence on plant height (71,41 cm), the number of tillers (33,72), and the number of productive tillers (23,17). Mapan 05 which was grown in soilless planting media with AWD irrigation had the best response in several parameters namely plant height (68,64 cm), number of grains per panicle (113,97grains), number of filled grains per panicle (100,35 grains), number of unfilled grains per panicle (13,62 grains), and grain weight per clump (47,48 g). In general, there was no interaction between both treatments in the observed variables. Overall, using the rice husk as material for soilless planting media was expected can increase dissolved oxygen levels and the availability of N to increase plant growth vegetatively while the use of rice hybrid varieties can positively be contributing to better rice growth and yield.*

**Keywords:** *alternate wetting-drying, rice varieties, soilless planting media*