

Effectiveness Media based in Soilles Irrigation System Alternate Wetting-Drying (AWD) On the growth and the production of rice plants

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ABSTRACT

The need for food in Indonesia, especially rice, increases with the growing population, but the land for rice farming is decreasing due to land conversion. To overcome this problem, two innovations namely an alternate wetting-drying (AWD) irrigation system and a soilless media farming system were created. This study was to identify the effect of soilless planting media combined with alternate wetting-drying irrigation systems on the growth and production of rice plants and their interactions. The study was conducted from June to November 2021 in Sumber Jeruk Village, Kalisat District, Jember Regency, East Java (281 masl, 21°C-31°C, humidity 65%-75%, and rainfall 2,977 per year). The experiment was arranged using a factorial completely randomized design with two factors with three replications. The first factor was the type of soilless planting media consisting of Topsoil, Topsoil + husk, Husk + water (non-AWD), Water (non-AWD), Water + AWD 1 day, and Water + AWD 2 days. The second factor was rice varieties consisting of IR 64 and Inpari 45. The results showed a significant interaction between soilless planting media and rice varieties, where the interaction of non-AWD husk + water media with IR64 varieties showed the highest value in the number of leaves (155,33). Similarly, the interaction between Topsoil + husk media with the IR 64 variety showed the highest fresh shoot weight (151,80 g). The single factor, namely the media, also showed a significant difference where the husk + water non-AWD media had the highest number of tillers (42,67), stem diameter (6,57 cm), and root fresh weight (74,58 g). Similarly, the Topsoil + husk media showed a significant difference in panicle length (22,35 cm), while the highest number of grains per panicle (105,44) was found in Topsoil media. In the single factor, namely variety, Inpari 45 gave the best response on the parameters of panicle length (65,69 cm) and the number of grains per panicle (305,30) while IR 64 gives the best response on the stem diameter (17,07 cm)

Keywords— *Alternate Wet-Dry, Rice, Soilless Media, Varieties*