

Peningkatan Efisiensi Aplikasi Air pada Petakan Sawah dengan Penerapan Irigasi Evaporatif (Kajian Teoritis)

Title	Peningkatan Efisiensi Aplikasi Air pada Petakan Sawah dengan Penerapan Irigasi Evaporatif (Kajian Teoritis)
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Abstract	<p>Increased awareness of precision agriculture in water management, requires various ideas and methods for its application in the fields. One idea that can be categorized into precision farming as well as appropriate technology, is evaporative irrigation. Evaporative irrigation is an idea to control the provision of irrigation water based on the direct response of plant water needs, namely evapotranspiration. The objectives of this study were to: (1) examine the theoretical aspects of the evaporative irrigation to be applied to plots of rice fields in a plot of plots with irrigation units, (2) laying out design principles for evaporative irrigation valve closures. The results showed that, theoretically, a controller pipe was needed which would be an indicator for thick water in the plot of rice fields. The pipe controller regulates the opening of the irrigation lid to the plot based on the float-ballast principle. The design principle is carried out by simulating the reduction in the controller water level of the controller which illustrates the decrease in thick water plots. Water depth that is still tolerated for rice growth will be the limit for the provision of irrigation water to the plots. Amount of irrigation water provided is equal to the value of plant water needs in the ongoing rice growth phase. One example of the design of the controller pipe water level to start and stop irrigation is at 117.8 mm water level and 300 mm respectively. The total water needs of one crop-season is calculated to be 625 mm. With the application of evaporative irrigation, the initial conditions of sufficient water do not require the provision of irrigation water until the 31st day. Irrigation water application after that, until harvesting, requires only 477 mm. Giving this water follows the plant water requirements calculated on a day-to-day basis.</p>
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