

ABSTRACT

ESTIMATION OF WATER REQUIREMENT AND CROP COEFFICIENT (K_c) OF SOYBEAN (*Glycine max* (L) Merrill) VARIETY OF TANGGAMUS WITH LYSIMETER

By

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Soybean plays an important role in economy of indonesia that it is the raw material of tempe. However; a problem is arise because unbalance between the production and consumption. The price of soybean has made farmers not willing to cultivate soybean. Other problem is complexity of the soybean cultivation, and especially for water scarcity. Therefore; water requirement of soybean needs to be seriously calculated. The aims of this research was to to determine the water requirement of soybean by measuring evapotranspiration of local varieties of soybean directly by using lysimeter. This research was conducted at the Integrated Field Laboratory University of Lampung and Laboratory of Water and Land Resources Engineering of Agriculture Biological Engineering of Department of Agriculture, University of Lampung starting from 4 November 2013 to Jan 20 2014. Field observations were carried out with two 2 x 3 meters lysimeter, one to measure the crop evapotranspiration (ET_c) of Tanggamus variety and the other one was used to measure the grass evapotranspiration as standard evapotranspiration (potential). The results showed that the total water requirement of soybean (ET_c) for Tanggamus is 490.02 mm with the total per-growth phase each 80.3; 72.2; 234.5 and 102.5 mm. Crop coefficients (K_c) of soybean in the early growth phase, active vegetative, fertilization or seed pod filling and maturity for Tanggamus are found to be 0.48; 0.69; 0.9; 0.78.

Keywords : soybean, lysimeter, evapotranspiration, crop coefficient.