

ABSTRACT

ANALYSIS OF WATER BALANCE OF CORN (*ZEA MAYS*) IN BANDAR LAMPUNG

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Corn (*Zea Mays*) is one important crop in Indonesia after rice. Indonesia people needs this crop continuous by increase since Indonesian population is growing. One effort to support the production of corn is to supply adequate irrigation water.

This aims of this research were (1) to calculate the amount of irrigation water required, (2) to quantify the potential rainwater can be harvested and use as irrigation, (3) to analyze the crop evapotranspiration, percolation and runoff rate, and (4) to determine K_c .

Plot experiment was conducted at the Integrated Field Laboratory College of Agriculture, University of Lampung from 26 August to 4 December 2011. Field observation was carried out on two experimental treatments with four replicates, the treatment were plots with plastic liner (plot A) and without plastic liner (plot B) each equipped with a water storage pond at the downstream.

The results showed that (1) the consumptive use (ET_c) during the study water requirements of corn is 614,3 mm, (2) total runoff that occurs on the plot without plastic liner was 37,24 mm, (3) percolation that occurred during the study on the plot without plastic liner was 40,58 mm, (4) the corn crop coefficient (K_c) on average in the early developmental stages, vegetative stage, stage of flowering and seed formation, and aging stage were 1,17; 1,37; 1,38; and 1,19, and (5) the water productivity on plot A was 1,88 kg grain/m³ water, while on the plot B was 2,48 kg grain/m³ water.

Key words: water balance, corn, evapotranspiration, percolation, surface runoff.

